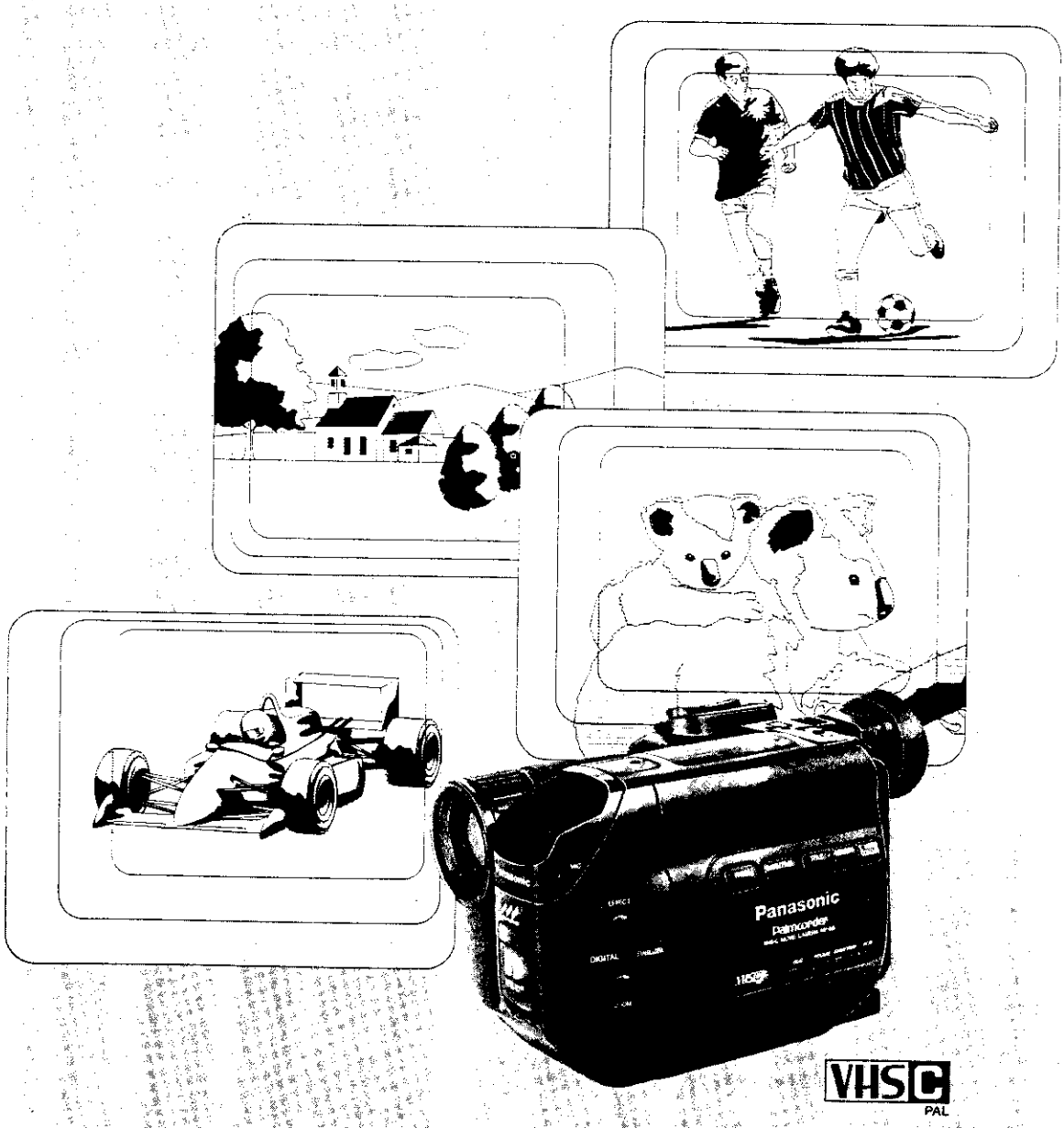
VHS Compact Movie

Panasonic

NV-S8A

Operating Instructions



Before attempting to connect, operate or adjust this product, please read these instructions completely.

VQT4823

Dear Customer,

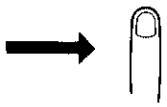
We would like take this opportunity to thank you for purchasing this Panasonic Movie Camera.

Please read these Operating Instructions carefully—especially the cautions on page 49 and thereafter—before using the unit for the first time. Keep these Operating instructions handy for later reference, in case you want to look up something in the future.

Cautions:
Injury or material damage resulting from any kind of use that is not in accordance with the operating procedures explained in the Operating Instructions are the sole responsibility of the user.

Guide to these Operating Instructions

- The numbers of the operating instructions correspond with the numbers in the illustrations. i.e. the button or switch to be operated as explained in the sentence(s) in the operation step 1 is also numbered 1 in the left as well as in the right illustration.
- In the illustrations on the left, the position of the buttons and switches to be operated are shown on the Movie Camera.
- The illustration in boxes on the right show close-ups of the buttons and switches to be operated.
- The arrows and finger in the illustration have the following meanings:



Sliding, turning or pushing the indicated operation control in the direction of the arrow and finger.

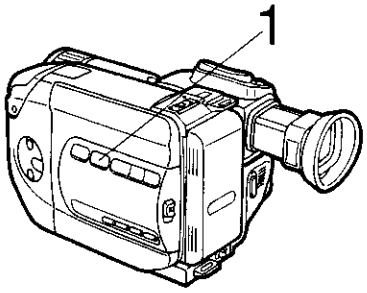


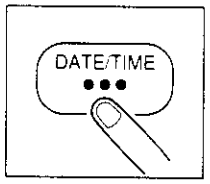
Returning the indicated operation control to the centre "OFF" position.

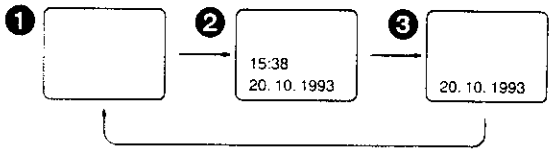


Sliding the indicated operation control to the left or right.

■ For example: In the case of the following operating instructions and illustrations

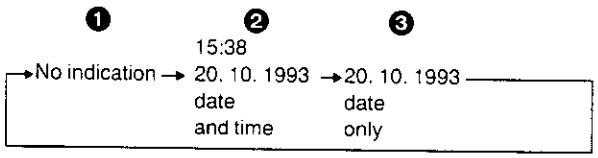






1 Press.

- Pressing the [DATE/TIME] Button repeatedly changes the Date Time indication ❷ in the Viewfinder in the following order:



- Press the [DATE/TIME] Button to select the desired indication.

Notes:
1. The sentence in the operations step 1 explains the operation to be performed.
2. The location of the button to be operated in step 1 is shown with the identical number in the illustration of the whole Movie Camera.
3. The illustration in the box on the right shows a close-up of the button with its lettering.
4. The illustration below shows how the indication in the Viewfinder changes as a result of the operation performed in step.1

Information for Your Safety

IMPORTANT

Your attention is drawn to the fact that recording of pre-recorded tapes or discs or other published or broadcast material may infringe copyright laws.

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

VHS-C Movie NV-S8

- **The rating plate is on the bottom side of the Movie Camera.**

AC Adaptor VW-AS1

- **The rating plate is on the bottom side of the unit.**

CAUTION

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

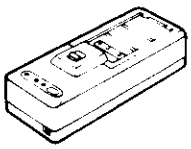
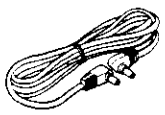
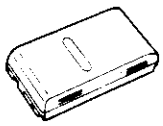
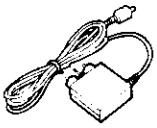
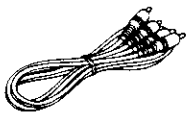
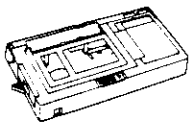
If the supply cord of this equipment is damaged, it must be replayed by the special cord.

FOR YOUR SAFETY

■ **DO NOT REMOVE THE OUTER COVER.**

To prevent electric shock, do not remove the cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

Checklist of the Standard Accessories

AC Adaptor VW-AS1A  For supplying power to the Movie Camera or for charging the Battery Pack (see P. 10, 12)	DC Input Cable VJA0669  For connection to the AC Adaptor (see P. 12)	Battery Pack VW-VBS1E  For supplying power to the Movie Camera (see P. 10, 11, 12)	Button Type Battery CR2032  For storing date, time and title in memory. (see P. 13)	Shoulder Strap VFC0974  (see P. 17)	RF Adaptor VW-RF8E  For connection to a TV set (see P. 43)
Audio/Video Cable VFA0028  For connection to a TV set (see P. 43, 47)	Cassette Adaptor VW-TCA7E  For playback on a Video Tape Recorder (see P. 44)	Battery R6  For the Cassette Adaptor (see P. 44)			

Optional Accessories are on the Page 55.

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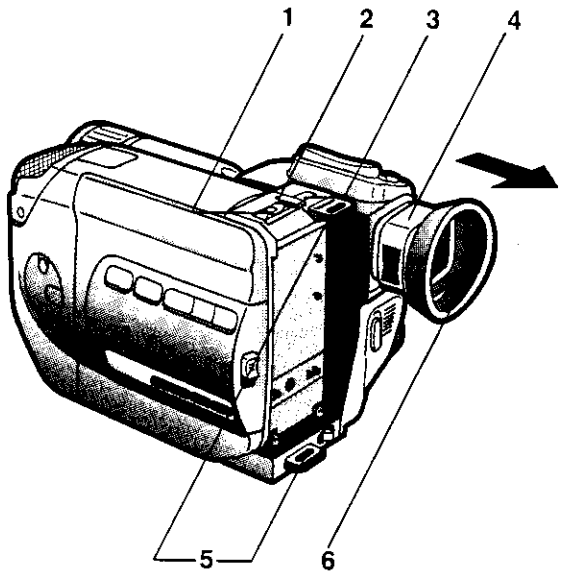
Playback

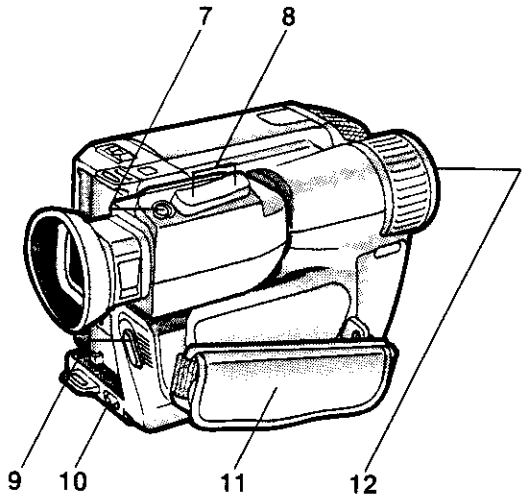
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With this Movie Camera, S-VHS-C cassette tapes recorded in the S-VHS format cannot be played back.





Controls and Functions

1 Operation Switch [OPERATE]
(p. 12, 14, 15, 19, 22, 23, 24, 26, 27, 28, 29, 35, 45, 48)
Set this switch to "CAMERA" for shooting.
Set it to "VTR" for playback.
To turn the Movie Camera off, set it back to the centre "OFF" position.
("VTR" means Video Tape Recorder.)

2 Operation Lamp
It lights up when the Operation Switch is set to "CAMERA" or "VTR".

3 Cassette Eject Button [EJECT] (p. 18)
Press this button to open the cassette compartment.

4 Viewfinder (p. 15, 22, 45)
The subject in front of the camera can be seen on the viewfinder screen. Superimposed on the picture are indications about the operation and condition of the Movie Camera.
To be able to see the picture on the viewfinder screen with maximum magnification during shooting and playback, pull on the plastic ring behind the Eyecup to extend the Viewfinder.
The Viewfinder can be turned upward from its horizontal position by up to 90°.

5 Shoulder Strap Holders (p. 17)
Attach the Shoulder Strap to these two holders.

6 Eyecup (p. 26, 92)

7 Snapshot Button [SNAPSHOT REC] (p. 26)
Press this button for shooting a still picture for approx. 5 seconds.
To be able to press this button, the Movie Camera must be in the shooting pause mode ([OPERATE] Switch is set to "CAMERA").

8 Zoom Button [W] and [T] (p. 30, 31, 39, 40, 42)
Press the [W] Button lightly to zoom out gradually to the wide-angle position for panoramic shots; press the [T] Button lightly to zoom in gradually to the telephoto position for close-up shots of distant subjects.

For faster zooming, press the [W] or [T] Button more strongly.

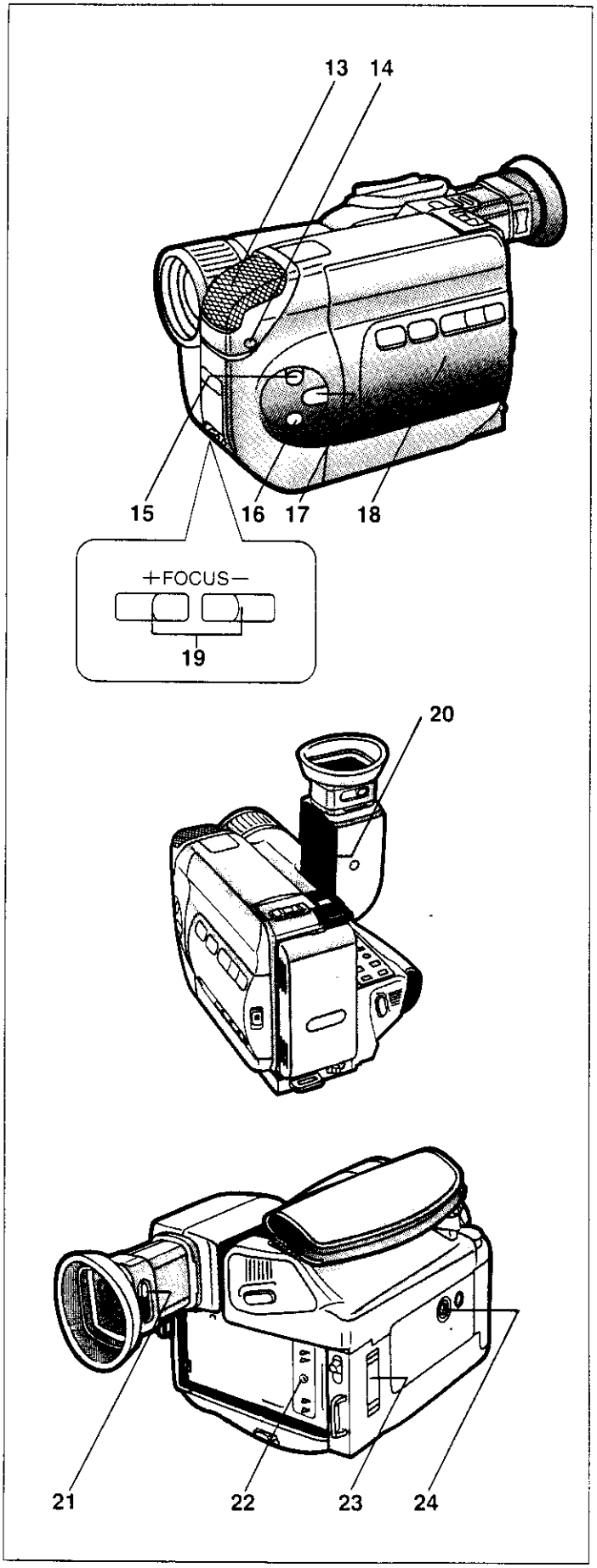
9 Start/Stop Button (p. 22, 23, 25, 27, 28, 32)
Press this button to start shooting a scene. (It is not necessary to keep it pressed during shooting.) Press it again to finish shooting the scene and change the Movie Camera back to the shooting pause mode.

10 Battery Pack Eject Lever [BATT.EJECT] (p. 12, 48)
Slide this lever to the right to remove the Battery Pack.

11 Grip Belt (p. 16)
Adjust the length of this belt so that the grip fits comfortably into the palm of your hand.

12 Lens Cap (p. 16, 22, 39, 40, 48)
The Lens Cap protects the Lens.
Be sure to remove the Lens Cap before starting to shoot.

Controls and Functions (cont'd)



13 Stereo Microphone
On the Hi-Fi sound track, stereo sound will be recorded. The two-way microphone is highly effective for recording interviews with the local ambience as well as narrations and music.

14 External Microphone Socket
If you want to use an external microphone, connect it to this socket (in this case, the built-in microphone will be deactivated).

15 Digital Effect Button [EFFECT] (p. 27, 28, 29)
Use this button for the following 3 operations.
Pressing this button repeatedly changes the operation mode in the following order:

1) For still picture shooting:	Press once.
2) For strobe picture shooting:	Press twice.
3) For mirror picture shooting:	Press three times.
4) To return to normal shooting:	Press one more time.

16 Digital Zoom Button [ZOOM] (p. 30)
Press this button to increase the power of the zoom function.

1) For zooming with up to 12-time enlargement:	D.ZOOM 1
2) For zooming with up to 36-time enlargement:	D.ZOOM 2

The picture can be enlarged by up to 12 or 36 times compared with the maximum wide-angle setting of the zoom lens in the normal zoom mode.

17 Digital Image Stabilizer Button [STABILIZER] (p. 21, 25)
Press this button when you are shooting on the move, from a vehicle for example.

18 Cassette Compartment (p. 18)
Insert a VHS C or S-VHS C compact video cassette into this compartment.

19 Focus +/− Buttons [FOCUS +/−] (p. 42)
After selecting the manual focusing mode with the [FOCUS] Button, adjust the focus to the desired subject by pressing these buttons.

20 Brightness adjustment (p. 15)

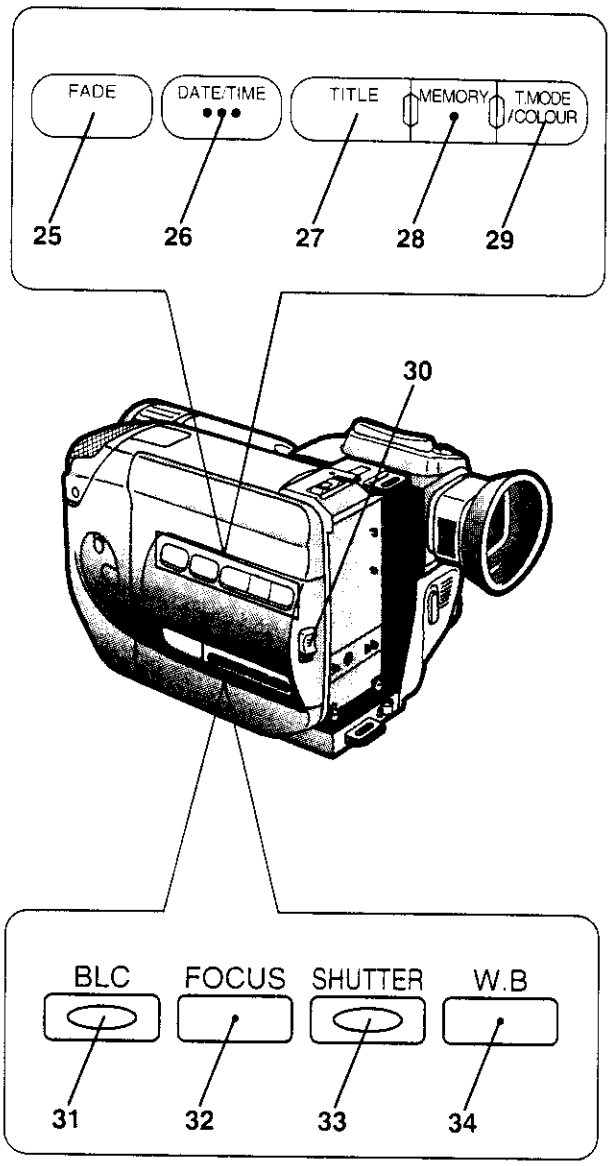
21 Eyepiece Corrector Control Knob (p. 15)
Slide this knob until the indications in the Viewfinder become clearly visible.

22 DC Input Socket (p. 12)
When using the AC Adaptor or the Car Battery Cord (optional) as power supply instead of the Battery Pack, connect the DC Input Cable to this socket.

23 Button Type Battery Holder (p.13)
It holds the Button Type Battery (CR2032) that maintains the clock operation and keeps the title in memory while the Movie Camera is turned off.

24 Tripod Receptacle
When using a tripod for stable shooting, attach the screw of the tripod to this receptacle.

Note:
When attaching a non-Panasonic brand tripod, ensure that the length of the mounting screw is no more than 7 mm, to avoid damage to the Movie Camera.



Controls and Functions (cont'd)

25 Fade Button [FADE] (p. 32)
Press this button to fade out a scene and to fade in the following scene for a soft scene-to-scene transition.

26 Date/Time Button [DATE/TIME] (p. 14, 15)
Press this button to make the time and/or date appear in the Viewfinder and superimpose them onto the picture during shooting.

27 Title Button [TITLE] (p. 35, 36, 37)
Press this button to make the memorised title appear in the Viewfinder; press it again to clear it from the Viewfinder. Pressing this button repeatedly will make the title appear, disappear, appear in the Viewfinder.

28 Memory Button [MEMORY] (p. 35)
Press this button to input a title into the memory.

29 Title/Mode/Colour Selector Button [T.MODE/COLOUR] (p. 36)
- After making the memorised title disappear from the Viewfinder...
 Press this button to select the "WIPE ↓" "WIPE ↑" or "SCROL" superimposing mode for the memorised title instead of the normal superimposing mode.
- After making the memorised title appear in the Viewfinder...
 Press this button to select the colour in which you want the memorised title to be superimposed onto the picture. You can choose any of 8 colours available.

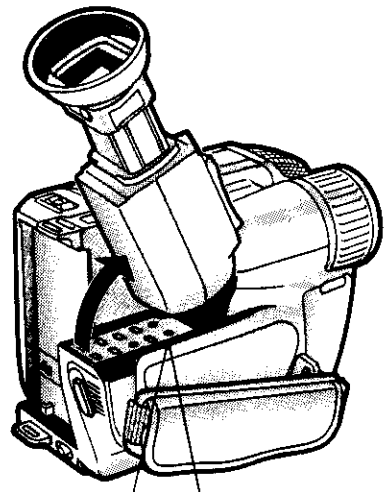
30 Mode Selector Switch [AUTO/MANUAL] (p. 33, 34, 39, 40, 42)
Set this switch to "AUTO" for almost any shooting condition. Set this switch to "MANUAL" when any of the following functions need to be set or selected manually;
- The Backlight Compensation Function
- The Focus Adjustment Function
- The High Speed Shutter Function
- The White Balance Adjustment Function

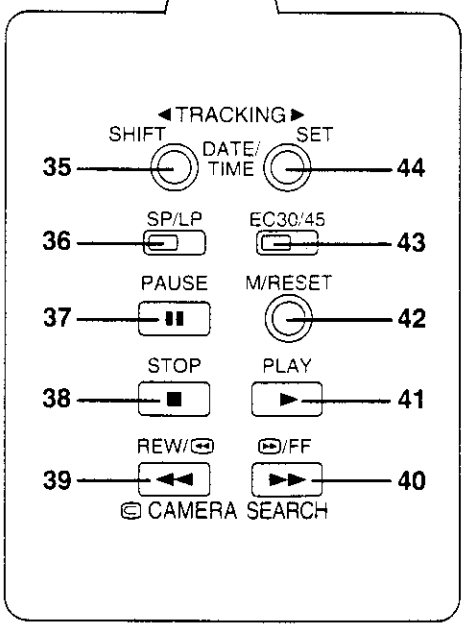
31 Backlight Button [BLC] (p. 33)
Press this button to brighten up the subject when shooting a backlit scene. By pressing it repeatedly, the degree of backlight compensation can be varied in three steps.

32 Focus Button [FOCUS] (p. 42)
Press this button to select manual focus adjustment for shooting.

33 Shutter Speed Selector Button [SHUTTER] (p. 34)
Press this button to select a higher shutter speed when shooting scenes with fast movements.

34 White Balance Button [W.B] (p. 38, 39, 40)
Press this button to select manual white balance adjustment for shooting.





Controls and Functions (cont'd)

35 Tracking/Date/Time Shift Button
[DATE/TIME SHIFT • TRACKING] (p. 14, 45)
Use this button for the following operations:
1) Press it to advance to the next item during the setting of the time and date.
2) Press it when you want to adjust the tracking manually.

36 Recording Speed Selector Switch [SP/LP] (p. 19)
Set this switch to select the desired tape speed. (SP/LP)

37 Pause Button [PAUSE] (p. 23)
Press this button during playback to be able to watch a still picture; press it again to resume normal playback.

38 Stop Button [STOP] (p. 46)
Press this button to stop the playback.

39 Rewind/Review Button [REW/◄◄] (p. 20, 23, 24, 45, 46)
Use this button for the following operations:
1) With the [OPERATE] Switch set to "CAMERA";
Press it briefly after shooting a scene in order to play back the last few seconds of the recording for quick confirmation that the recording is okay. When this button is kept pressed, the recorded scene is played back at high speed in reverse direction.
2) With the [OPERATE] Switch set to "VTR";
Press it to rewind the tape from the stop mode.
Keep it pressed during playback for high-speed playback in reverse direction.

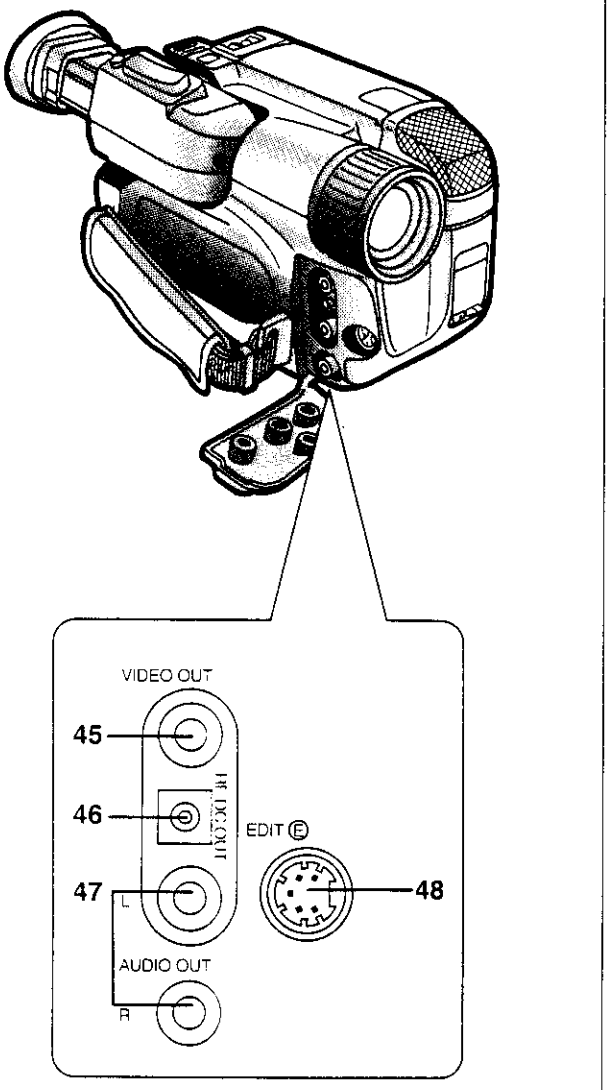
40 Fast Forward/Cue Button [►►/FF] (p. 20, 24, 46)
1) With the [OPERATE] Switch set to "CAMERA";
When this button is kept pressed, the recorded scene is played back at normal speed in forward direction.
2) With the [OPERATE] Switch set to "VTR";
Press this button to wind the tape forward at high speed from the stop mode.
Keep it pressed during playback for high-speed playback in forward direction.

41 Play Button [PLAY] (p. 23, 45)
Press this button to start the playback.

42 Memory Reset Button [M/RESET] (p. 20)
Use this button for the following operations:
1) Press this button for more than one second to reset the tape counter to "0:00.00".
2) Press this button briefly (for about 0.5 seconds) to activate the tape counter memory function so that the tape position corresponding to the tape counter indication "M 0:00.00" can be found easily during fast-forwarding or rewinding of the tape.

43 Remaining Tape Time Selector Switch [EC30/45] (p. 19)
Set this switch to select the length of the cassette tape that is used for shooting or playback.

44 Tracking/Date/Time Set Button
[DATE/TIME SET • TRACKING] (p. 14, 45)
Use this button for the following operations:
1) Press it to change the figures during the setting of the time and date.
2) Press it when you want to adjust the tracking manually.



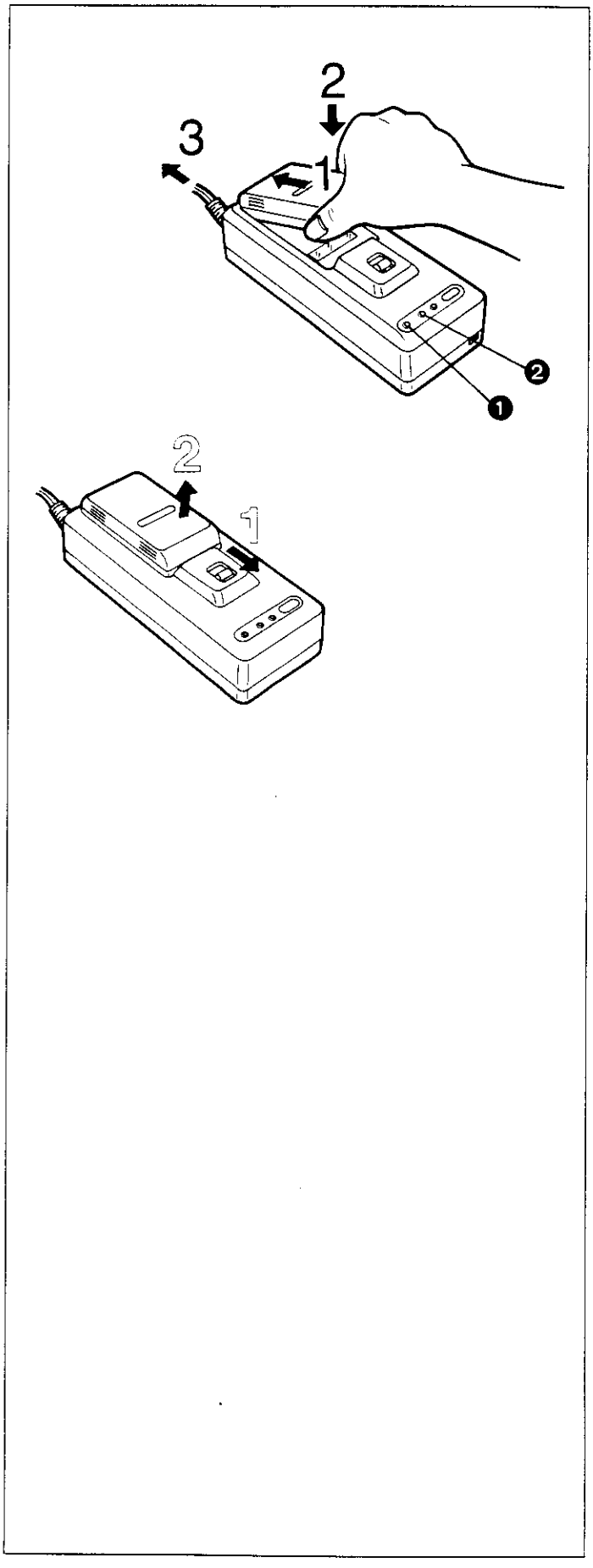
Controls and Functions (cont'd)

45 Video Output Socket [VIDEO OUT] (p. 43, 47)
Connect this socket via AV Output Cable to the video input socket of the TV set (or the RF Adaptor) for playback directly from the Movie Camera.

46 RF DC Output Socket [RF DC OUT] (p. 43)
Connect this socket with the RF Adaptor to supply it with power for playback directly from the Movie Camera.

47 Audio Output Sockets [AUDIO OUT] (p. 43, 47)
Connect this socket via audio cable with the audio input socket of the TV set (or the RF Adaptor) for playback directly from the Movie Camera.

48 Edit Socket [EDIT Ⓔ] (p. 47)
Connect an Editing Controller, or some other accessory to this socket.



Using the Battery Pack

1) Charge the Battery Pack

1 **Insert the upper end of the Battery Pack into the connector on the AC Adaptor as shown in the illustration.**

2 **Press the rear portion down until it locks with a click.**

3 **Connect the Power Cable of the AC Adaptor to the mains.**
- The Power Lamp ❶ lights up and several seconds later the Charging Lamp ❷ lights up, too.

Note:
When charging the Battery Pack, disconnect the DC Input Cable from the AC Adaptor.

■ Charging Time and Maximum Time for Continuous Shooting

Battery Pack No.	VW-VBS1E VW-VBR1E	VW-VBS2E VW-VBR2E	VW-VBH1E	VW-VBH2
Charging time in minutes	60	120	80	160
Max. shooting time in minutes	45	90	55	110

- The Battery Pack supplied with this Movie Camera is the model VW-VBS1E.

Charging Indication Lamp:
This lamp lights up when the charging is started.
Even after this lamp goes out, the charging should be continued for at least two more hours to obtain maximum charge.

Operation Time:
With a fully charged Battery Pack (VW-VBS1E), the Movie Camera can be used (in record mode only) continuously for approx. 50 minutes at 25°C. However, depending on how often the various functions listed below are used, and depending on the shooting conditions, the actual operation time may be considerably shorter.
- Shooting start/stop
- Auto focus
- Zoom function
- Playback, fast forward, rewind, and other operations
- Digital functions, e.g. image stabilizer
- Use of the Movie Camera in low temperature

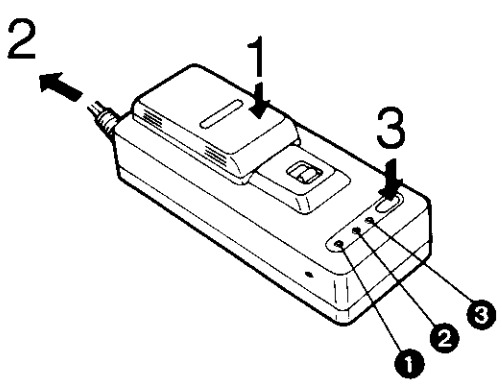
Therefore, it is recommended to take along a charged spare Battery Pack.

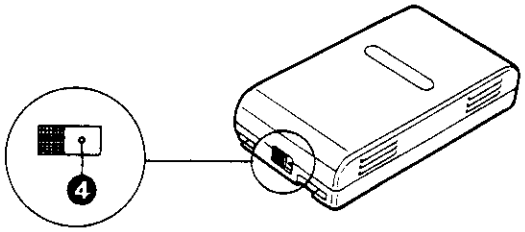
■ To Eject the Battery Pack...

1 **Slide the Battery Eject Lever in the direction of the arrow and...**

2 **Remove the Battery Pack.**

Notes:
The Battery Pack is shipped in discharged condition and must be charged before it can be used.
- Charge the Battery Pack within a temperature range of 10°C–35°C.





Using the Battery Pack (cont'd)

■ How to Use the Convenient Discharge→Charge Function

If a Battery Pack is recharged repeatedly in not completely discharged condition, the so-called "memory effect" will occur, and the operation time of the recharged Battery Pack will gradually become shorter. Therefore, it is recommended to regenerate the Battery Pack after approx. every fifth recharging by using the convenient Discharge→Charge Function.

1 **Attach the Battery Pack to the AC Adaptor.**

2 **Connect the Power Cable of the AC Adaptor to the mains.**
- The Power Lamp ❶ lights up, and soon after, the Charging Lamp ❷ lights up.

3 **Press the Discharge→Charge Button for more than 1 second.**
- The Discharge Lamp ❸ lights up, and the Charge Lamp ❷ goes out.

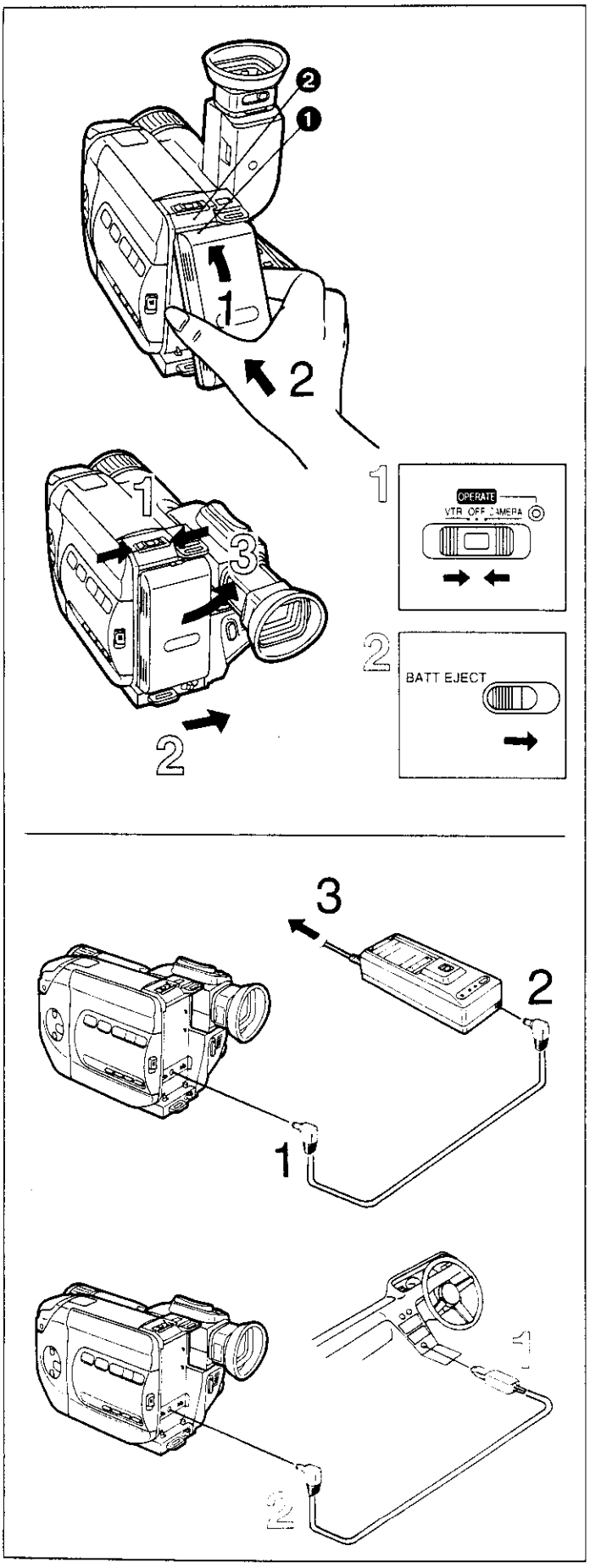
■ **When the discharging is finished**, the Charge Lamp ❷ lights up instead, and the charging starts.

■ **When the charging is completed**, the Charging Lamp ❷ goes out.

Notes:
- To optimise the life of the Battery Pack, it is recommended to charge the Battery Pack model VW-VBS1E for a minimum of 3 hours and model VW-VBS2E for at least 6 hours. This does not include the "discharging time", when using the discharge function.
- When using the Discharge→Charge Function, the charging takes five or six times as long as normal charging.

■ How to Use the Charging Confirmation Marker

This marker makes it convenient to distinguish between charged and discharged Battery Packs. For example, slide the knob so that the dot ❹ is visible to mark a charged Battery Pack, and slide it so that the dot is not visible for a partially or fully discharged Battery Pack.



Using the Battery Pack (cont'd)

2) Attach the Battery Pack to the Movie Camera

■ How to Attach the Battery Pack

1 **Align the mark ❶ at the top of the Battery Pack with that on the Movie Camera ❷ and insert the Battery Pack with its upper part first.**

2 **Attach the Battery Pack until it locks with a click.**

■ How to Remove the Battery Pack

1 **Press and slide to "OFF".**

2 **After the image in the Viewfinder disappears, slide to the right and...**

3 **Pull off the Battery Pack.**

- When the Battery Pack is replaced, the modes previously set with the [BLC], [FOCUS], [SHUTTER] and [W.B] Buttons are cancelled and the Tape Counter Indication is reset to zero. (See page 48.)

Caution:

- If the Battery Pack is removed during recording or playback, the tape remains wound around the video head cylinder and could become damaged.
 This is also the case during loading and unloading of the tape.

Using the AC Adaptor or the Car Battery Cord (optional)

■ How to Use the AC Adaptor

1 **Connect the DC Input Cable to the DC Input Socket on the Movie Camera.**

2 **Connect the other end of the cable to the DC Output Socket on the AC Adaptor.**

3 **Connect the Mains Cable of the AC Adaptor to the mains.**

Note:
When the AC Adaptor is used to supply the Movie Camera with power, remove the Battery Pack from the AC Adaptor.

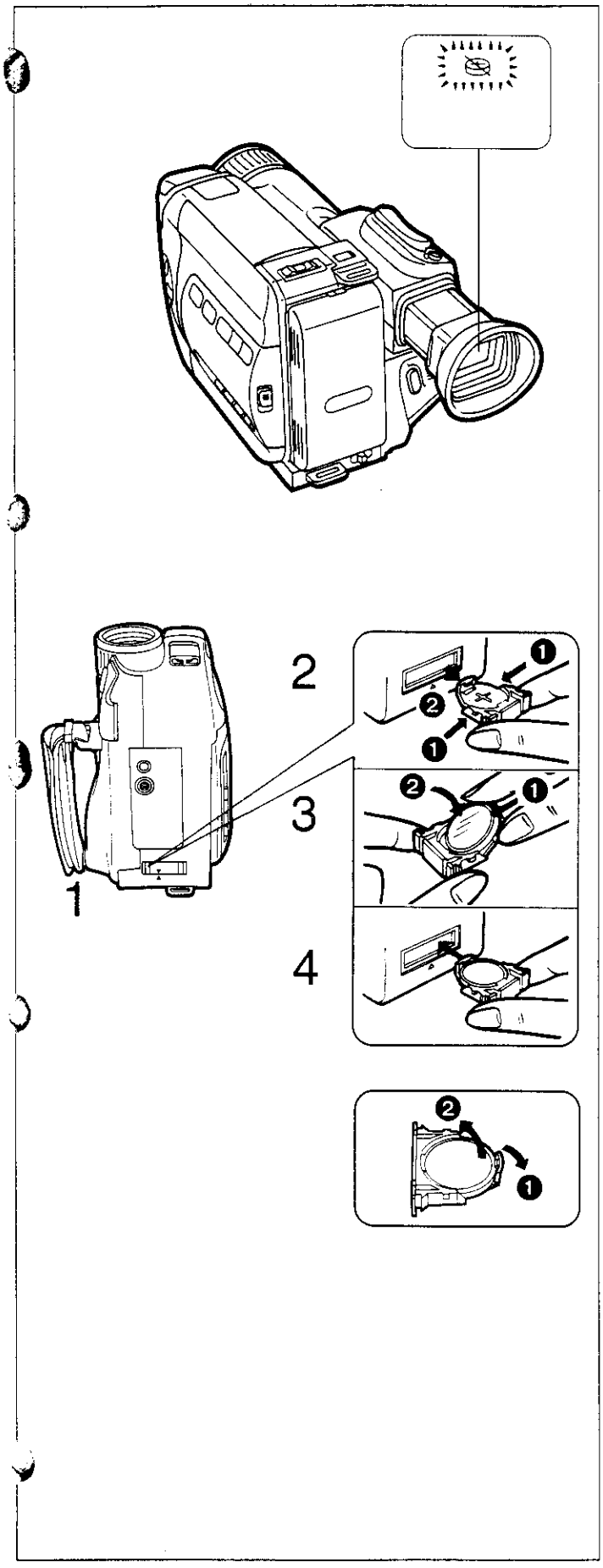
■ How to Use the Car Battery Cord (optional)

1 **Start the engine and then plug the Car Battery Cord into the cigarette lighter socket.**

2 **Connect the other end of the cord to the DC Input Socket on the Movie Camera.**

Notes:

- The Car Battery Cord can only be used with 12 V DC negative-grounded vehicles.
- Do not start the car engine while the Movie Camera is powered by the car battery.



Setting the Clock

1) Insert the Button Type Battery

The "CR2032" size Button Type Battery is necessary for storing the date, time and selected tape speed in the memory, when the Movie Camera is turned off.

1 Turn the Movie Camera upside down.

2 Push the two stoppers ❶ toward each other and pull out the Battery Holder ❷.

3 Install the Battery with the (+) mark facing downward until it locks with a click.

4 Insert the Battery Holder back into the Movie Camera until it locks.

- If the Button Type Battery is not inserted or if it is exhausted, the Indication " " in the Viewfinder flashes for approx. 10 seconds when turning the Movie Camera on.

■ How to Exchange the Button Type Battery

- Use only a "CR2032" size Button Type Battery.
- The CR2032 is manufactured by Panasonic only.

Note:

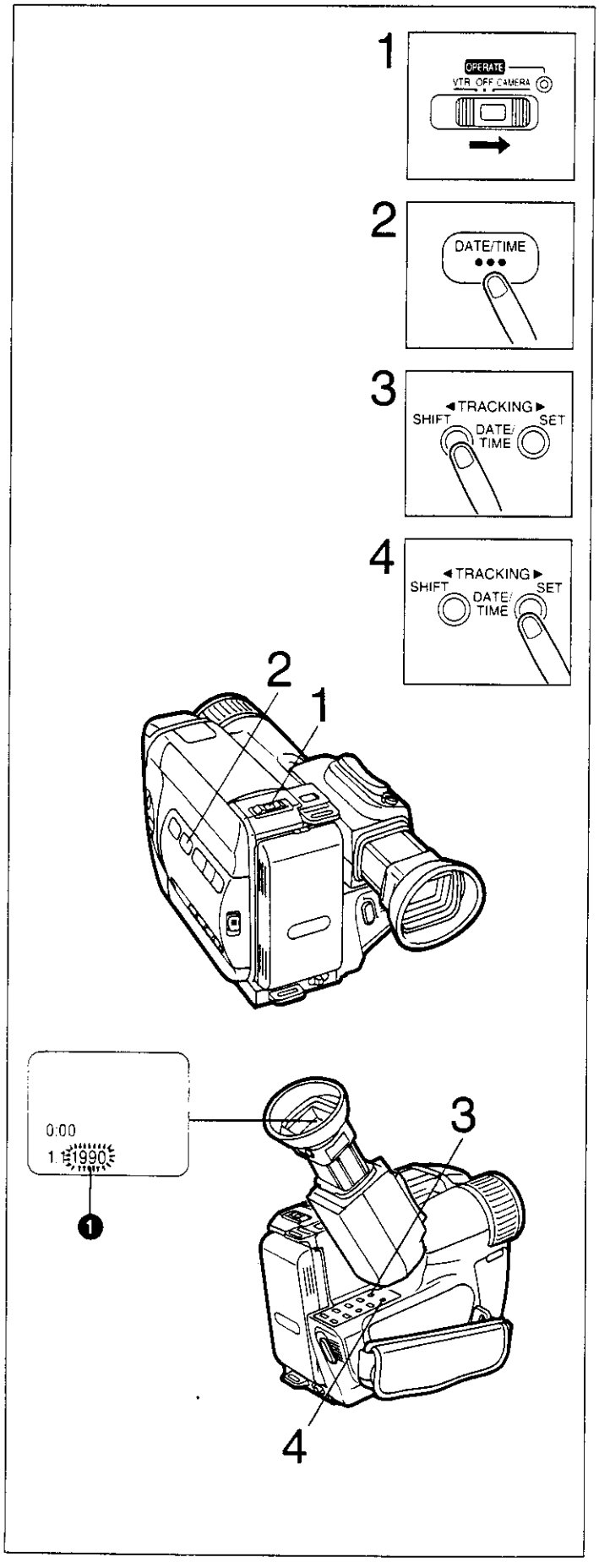
- If the Date and Time Indications in the Viewfinder are no longer correct after replacing the Button Type Battery, set the date and time as explained on page 14.

CAUTIONS FOR BATTERY REPLACEMENT

- The life of the battery is about one year. Inspect, and if necessary, replace the Battery once a year.
- Load the new battery with its polarities (+ and −) correctly aligned.
- Remove the spent battery immediately and dispose of it.
- Do not try to short-circuit, recharge or heat the battery and do not throw it into a fire.
- Keep the button-type battery out of reach of children. If a battery has been swallowed, consult a doctor immediately.
- Do not handle the Button Type Battery with metallic tweezers because this could short-circuit it.

Setting the Clock (cont'd)

2) Set the Date and Time



1 Press and slide to "CAMERA".

2 Press.

3 Keep pressed for more than 2 seconds.

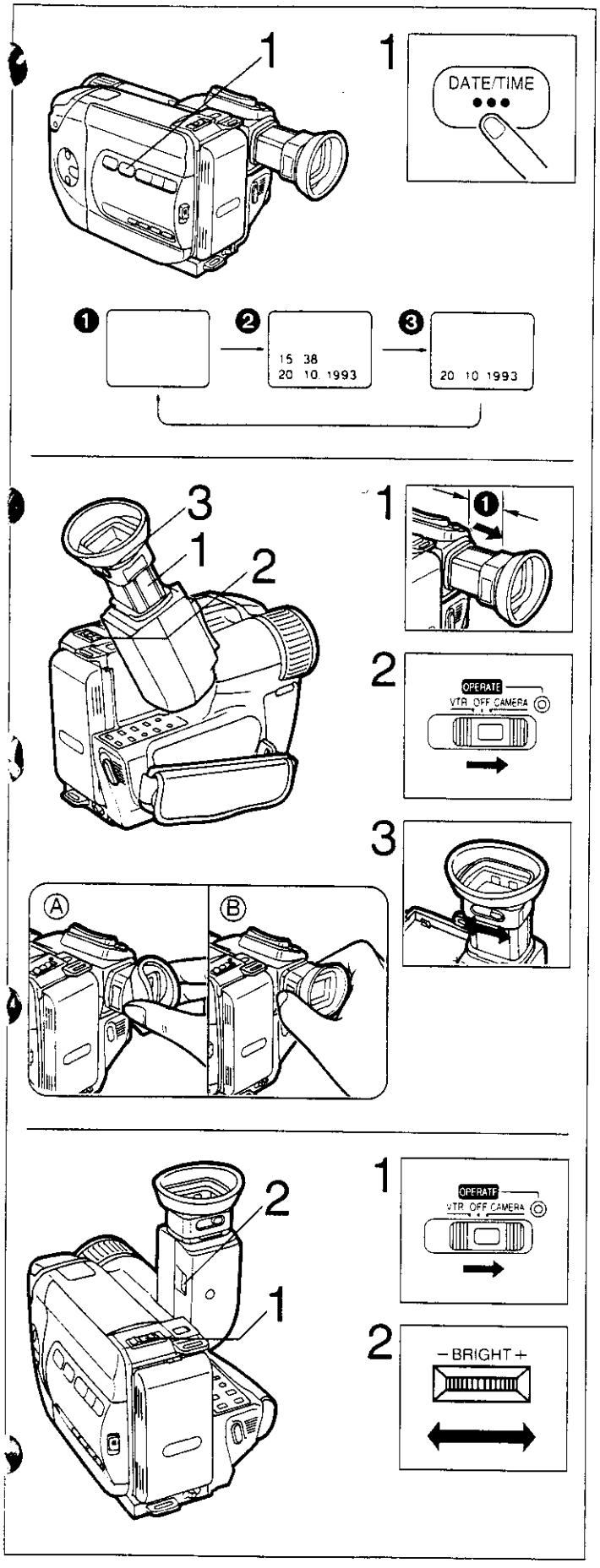
- The year portion ❶ of the Date/Time Indication starts to flash.
- The flashing portion of the Date/Time Indication can be changed with the [SHIFT] Button in the following order:

┌→Year→Month→Day→Hour→Minute→" "→┐

4 Press to change the figures.

Year:	**1990**→1991→ →2089→**1990**→
Month:	1→2→ →12→1→...
Day:	1→2→ →31→1→...
Hour:	0→1→ →23→0→...
Minute:	**00**→01→ →59→**00**→...

- **Repeat procedures 3 and 4 until all items have been set correctly.**
- Once the date and time are set, press the [SHIFT] Button in response to an accurate time source so that the clock begins to function.



Recording the Date and Time during Shooting

During shooting, the Date/Time Indication displayed in the Viewfinder will also be recorded.

1 Press.

- Pressing the [DATE/TIME] Button repeatedly changes the Date/Time Indication ❷ in the Viewfinder in the following order:

❶ ❷ ❸

No indication → 15:38 20.10.1993 date and time → 20.10.1993 date only → (back to No indication)

- Press the [DATE/TIME] Button to select the desired indication.

Extending the Viewfinder/Adjusting the Eyepiece Corrector

1 Before shooting, extend the Viewfinder to its fully extended position ❶ (about 2 cm).

Note:

- Do not hold the Viewfinder by the Eyecup because it could become detached from the Viewfinder.

Ⓐ Wrong

Ⓑ Correct

2 Press and slide to "CAMERA".

3 Slide until the indications in the Viewfinder become clearly visible.

- With this Eyepiece Corrector Control, the Eyepiece can be adjusted to the user's eyesight.

Note:

- Do not apply any pressure to the Viewfinder except when extending, raising, lowering and retracting it.

Adjusting the Brightness of the Viewfinder Screen

1 Press and slide to "CAMERA".

2 Turn to the right or left to adjust the brightness of the viewfinder screen.

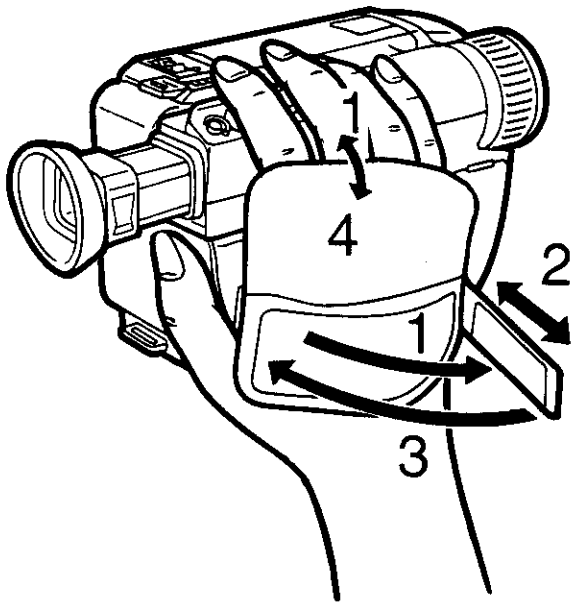
Notes:

- The picture in the Viewfinder may not be in colour, when the Movie Camera has just been turned on. This is normal; it takes a short while before the colours come on in the Viewfinder.
- Do not subject the Viewfinder to strong shocks.
- Do not use the Viewfinder as a carrying handle.

Adjusting the Grip Belt/Removing the Lens Cap

■ Adjusting the length of the Grip Belt

The length of the Grip Belt should be adjusted so that the Grip fits comfortably into the palm of your hand and the Start/Stop Button and the [W] and [T] Zoom Buttons can easily be pressed with the fingertips.



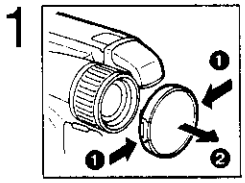
1 **Unfasten the velcro tape closure.**

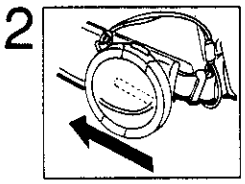
2 **Adjust the length to the size of your hand.**

3 **Fasten the velcro tape closure.**

4 **Fold the cover down over the Grip Belt.**

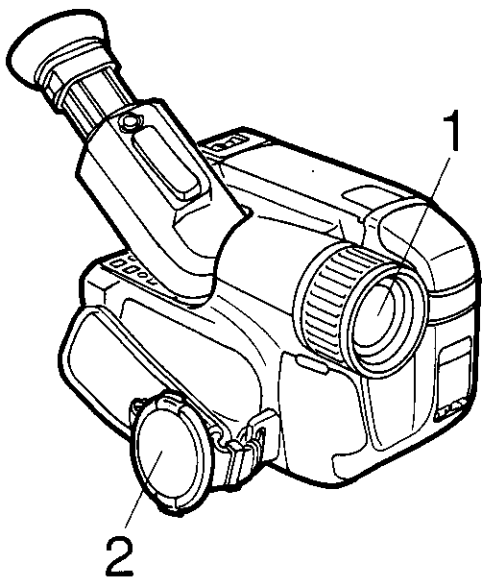
■ Removing the Lens Cap

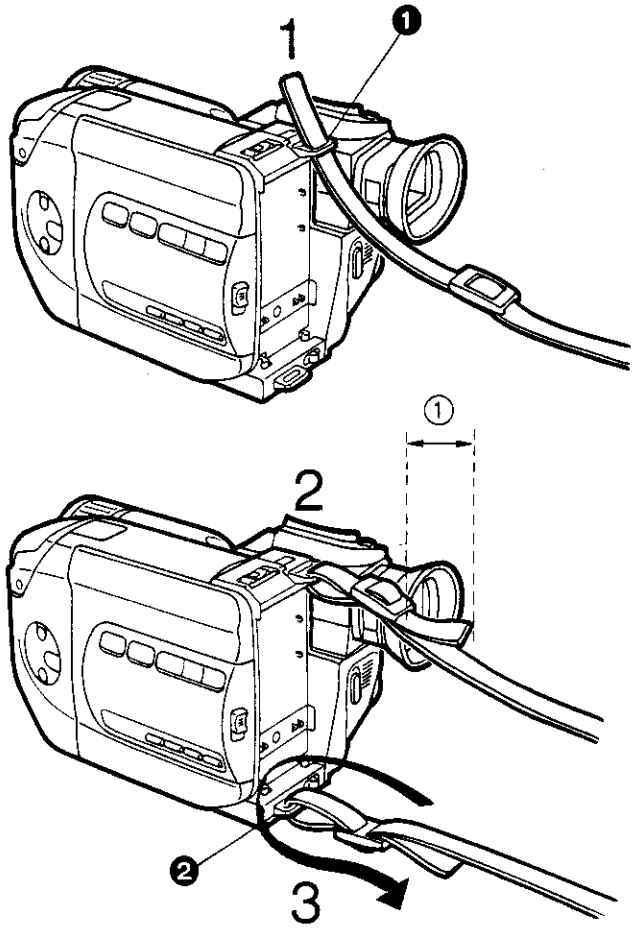


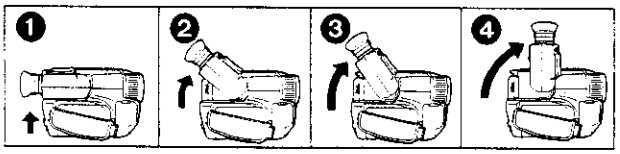


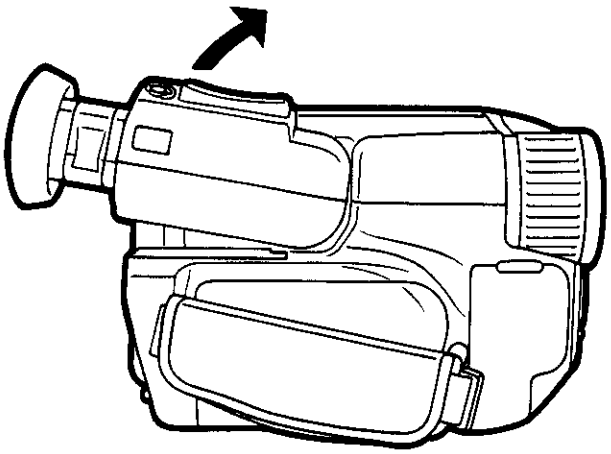
1 **Press the Stoppers and pull it off.**

2 **Hook the Lens Cap onto the Grip Belt to prevent it from getting in front of the Lens.**









Attaching the Shoulder Strap

1 Pull the end of the Shoulder Strap through the Shoulder Strap Holder ❶.

2 Securely attach the end of the Shoulder Strap. (① More than 2 cm)

3 Attach the other side ❷ in the same way.

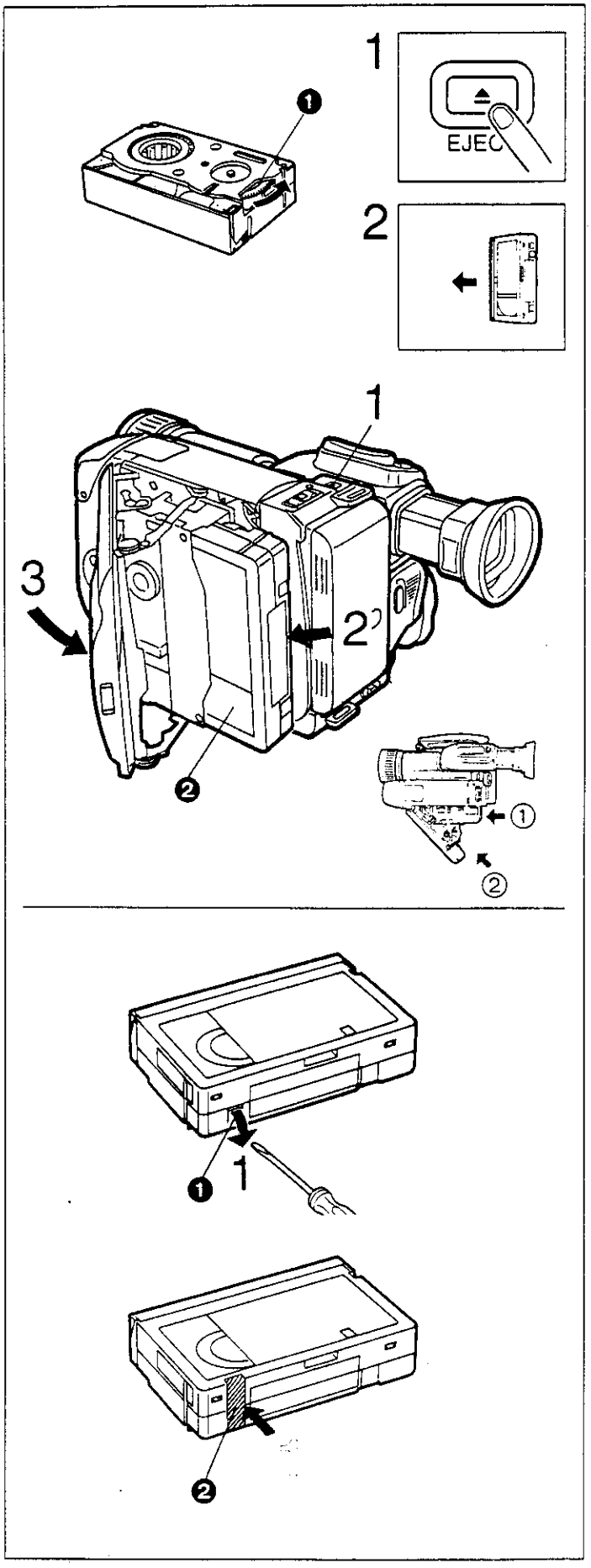
Adjusting the Angle of the Viewfinder

■ **Tilting Range of the Viewfinder (4 positions are marked by click stops)**

The Viewfinder can be turned upward in 4 steps. There is a click stop for each step. This makes it convenient to adjust the angle of the Viewfinder for different shooting positions, e.g. on a tripod or for low-angle shots.

Note:

•Do not use the Viewfinder to hold or carry the Movie Camera.



Inserting the Video Cassette

■ How to Insert the Video Cassette

•Use only VHS-C or S-VHS-C Compact Video Cassettes.

Before inserting the Cassette, make sure that the tape is not loose. If it is loose, tighten it by turning the cog wheel ❶ on the side of the cassette in the direction of the arrow.

1 Press.

•After a few seconds, the Cassette Compartment Cover opens.

2 Insert the video cassette with the cassette window ❷ facing downward.

① Correct
② Wrong

3 Close the Cover until it locks with a click.

■ How to Eject the Video Cassette

Make sure that power is supplied to the Movie Camera.

Press the [EJECT] Button.

Pull out the Video Cassette.

Close the Cover until it locks with a click.

Preventing Accidental Erasure of Recordings

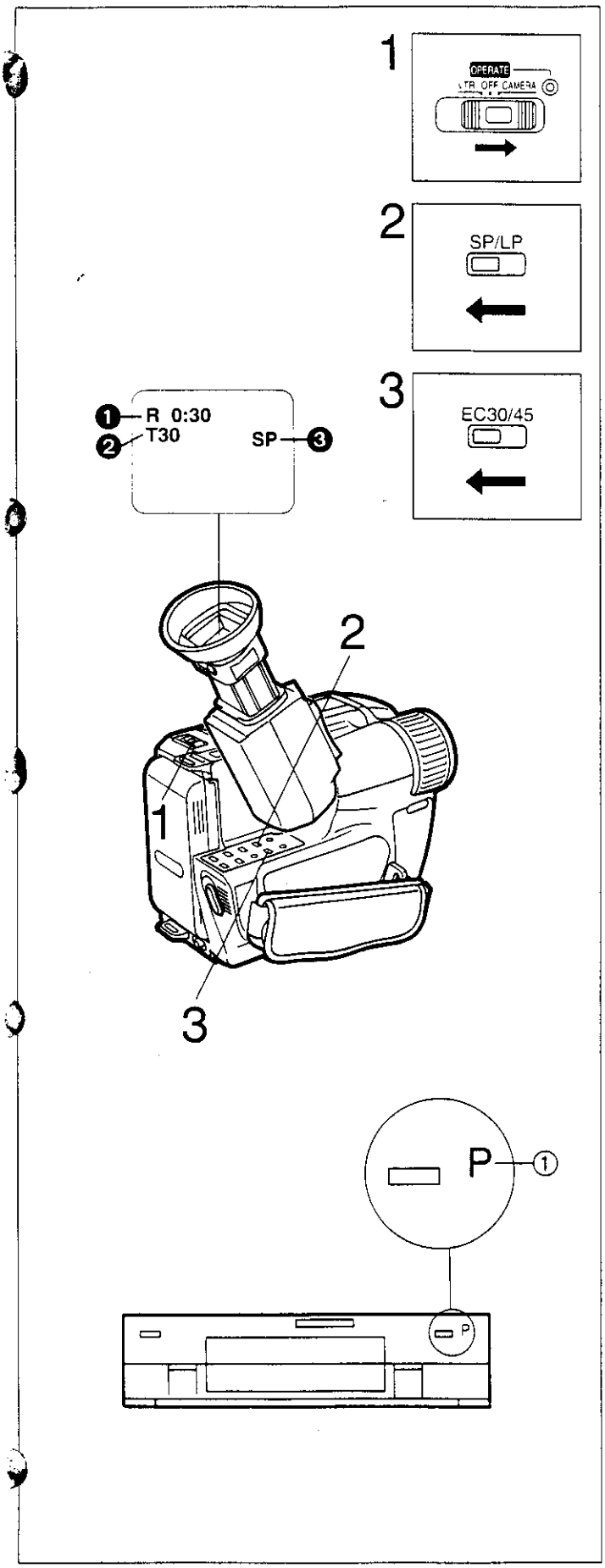
When recording on a previously recorded tape, the previously recorded contents will be erased and replaced by the new recording. An important recording can be protected against accidental erasure, by breaking out the tab ❶. If the tab is removed, recording on this Video Cassette is no longer possible.

■ How to Break off the Tab

1 Break off the tab with a screwdriver in the direction of the arrow.

■ How to Record again onto a Video Cassette with Removed Tab

Cover the hole firmly with two layers of adhesive tape ❷.



Confirming the Remaining Tape Time

- During shooting and playback, the remaining tape time is indicated in hours and minutes in the top left corner of the Viewfinder ❶.
- It is important that the correct tape length ❷ for the video cassette being used is selected with the [EC35/45] Switch.

After inserting a Cassette in the Cassette Compartment...

1 Press and slide to "CAMERA".

2 Set to "SP".

- The "SP" Indication ❸ appears in the Viewfinder. If you want to shoot in the LP mode, set to "LP".

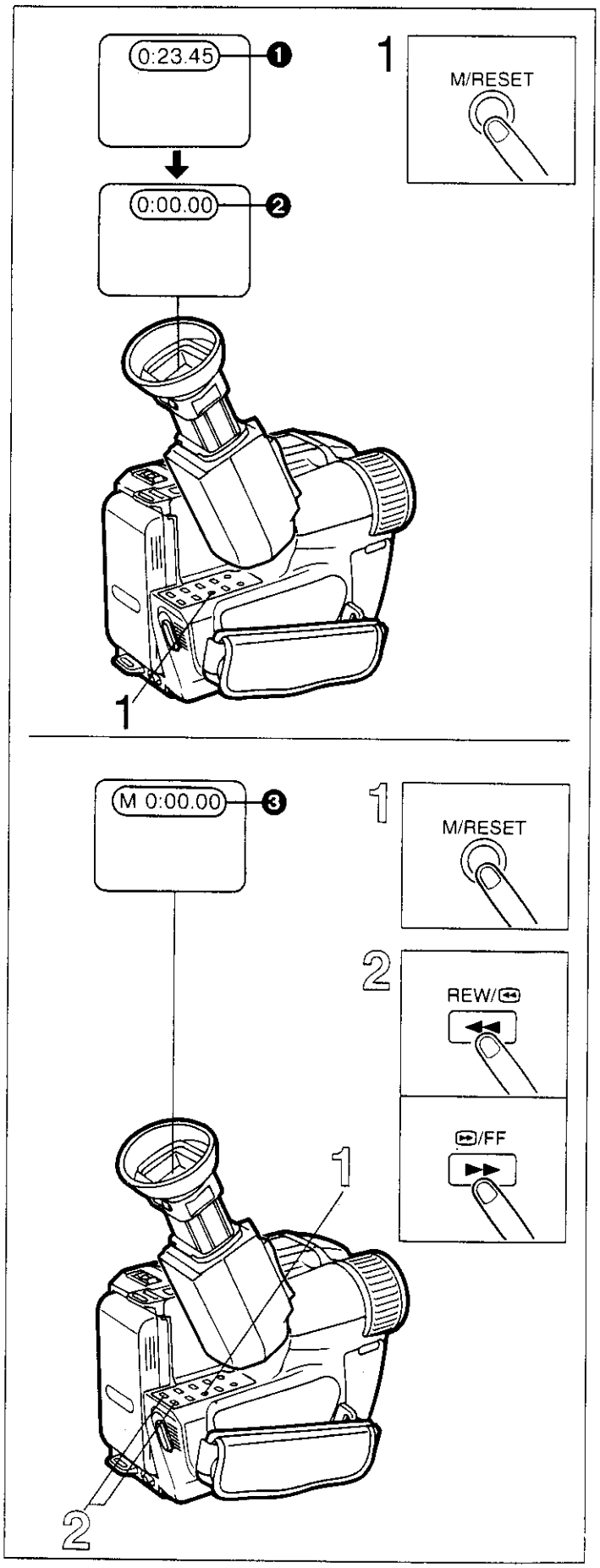
3 Set to "EC30".

- The "T30" Indication ❷ appears in the Viewfinder. (If your cassette is of the EC30 type.) When using an EC45 type video cassette, set to "EC45" so that the "T45" Indication appears in the Viewfinder.
- The remaining tape time ❶ in hours and minutes as well as the length of the inserted tape are indicated.
- When shooting or playback is started, the "R" Indication flashes for a few seconds while the Movie Camera calculates the remaining tape time. As soon as the Remaining Tape Time Indication appears, the "R" Indication remains lit.
 ("R" means Remaining)

Notes:

- When the remaining tape time becomes less than 3 minutes, the Remaining Tape Time Indication flashes.
- When using a cassette tape with a "P" mark ①, it is possible to record on it for 60 minutes in the LP mode or for 30 minutes in the SP mode. However, the Remaining Tape Time Indication may not be precise.

Cassette Name	Recording Time (and Indication)	
	SP Mode	LP Mode
EC-30	30 minutes (T30)	60 minutes (T60)
EC-45	45 minutes (T45)	90 minutes (T90)



Using the Tape Counter Indication

The Tape Counter Indication shows the elapsed tape time in hours, minutes and seconds ❶.

■ How to Reset the Tape Counter to "0:00.00"...

1 Press for more than one second.
The Tape Counter is reset to "0:00.00" ❷.

- The Tape Counter is automatically reset to "0:00.00" when the cassette tape is taken out and a new cassette is inserted.

Note:
When the tape is rewound further than the tape counter position "0:00.00", the minus sign "–" appears in front of the Tape Counter Indication.

After rewinding the tape, the Tape Counter Indication may deviate a little from the corresponding tape position.

■ How to Search for the Tape Position "0:00.00" After Shooting or Playback...

1 Press briefly. (For about half a second.)

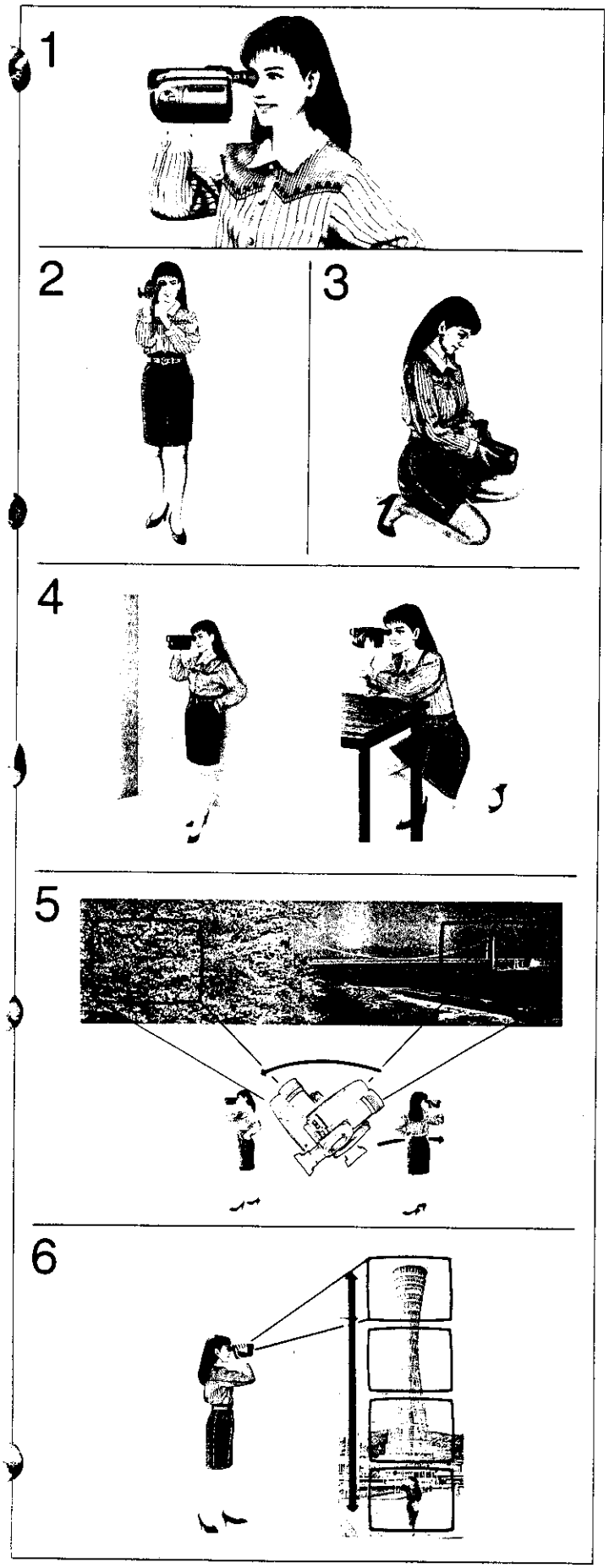
- The "M" Indication ❸ appears in the Viewfinder next to the Tape Counter Indication.

2 Press one of the two Buttons.

- The tape stops automatically at about the point where the tape counter reads "M 0:00.00".

Note:
After fast-forwarding or rewinding the tape, the Tape Counter Indication may deviate a little from the "M 0:00.00" tape position.

■ To Cancel the Memory Function...
Press the [M/RESET] Button.
- The "M" Indication disappears.



Holding the Movie Camera for Shooting

1 Shooting with the Digital Image Stabilizer Function.

With this function, even scenes shot with only one hand or shot from a moving vehicle will be rock-steady.

2 Shooting without the Image Stabilizer Function.

- Hold the Movie Camera with both hands with your elbows slightly in front of your lower chest.

3 Low-Angle Shooting.

4 For More Stable Pictures.

5 Panning.

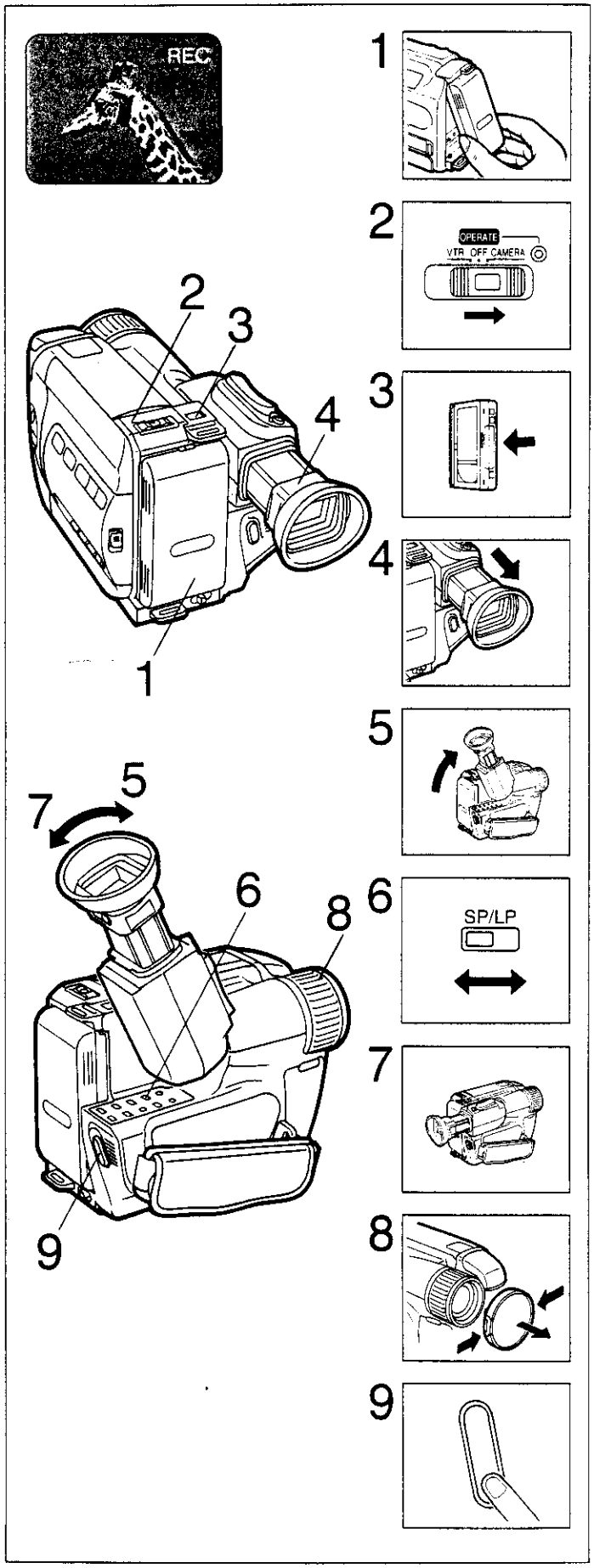
Moving the Movie Camera from left to right, or vice versa, to follow a moving subject or to provide a panoramic effect, is called panning.

6 Tilting.

Moving the Movie Camera vertically from top to bottom, or vice versa, to follow a moving subject or to show a narrow tall object, such as a tall building or tree in its full height, is called tilting.

■ Hints for Panning and Tilting

For best results, define the start and end points and rehearse the panning or tilting before actually shooting. Keep the panning speed very slow.



Shooting

■ **How to Shoot from the Beginning of the Video Cassette**

1 Attach the charged Battery Pack.

2 Press and slide to "CAMERA".

3 Insert a cassette with intact erasure prevention tab.

- A few seconds after closing the Cassette Compartment, the Movie Camera will be in the shooting pause mode.

4 Extend the Viewfinder.

5 Raise the Viewfinder.

6 Select "SP" or "LP".

7 Lower the Viewfinder.

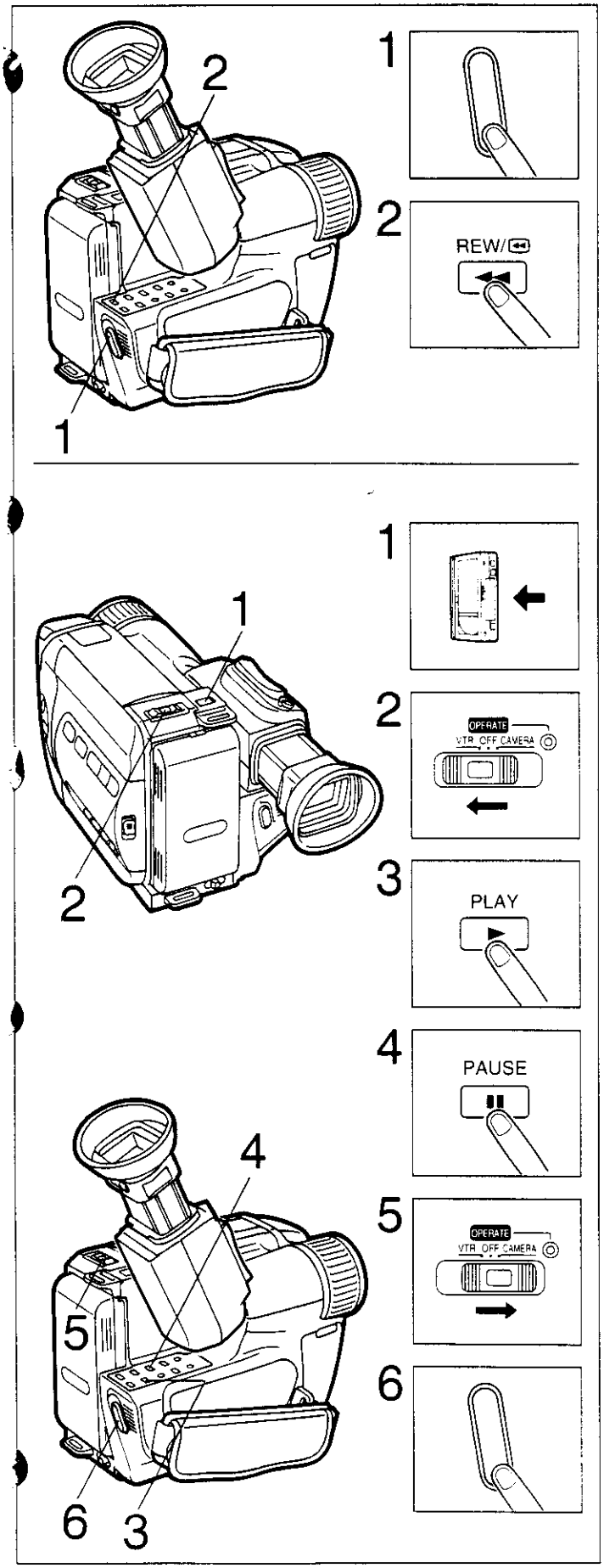
8 Remove the Lens Cap.

9 Press the Start/Stop Button.

■ **To Pause the Shooting...**
Press the Start/Stop Button.
■ **To Shoot the Next Scene(s)...**
Press the Start/Stop Button again.
■ **To Stop the Shooting...**
Press the Start/Stop Button to pause the shooting and then set the [OPERATE] Switch to "OFF".

Notes:

- If the Movie Camera is left in the shooting pause mode for more than 6 minutes, the shooting pause mode will be canceled and the Viewfinder will be turned off (recording lock mode). To resume shooting from this condition, set the [OPERATE] Switch to "OFF" and then to "CAMERA" again. If the Movie Camera is left in the recording lock mode for more than 48 hours, it will automatically switch off completely.
- When the Movie Camera is turned on, the "D.ZOOM 1" will automatically be selected. (See page 30.)
- The Digital Zoom Function (D.ZOOM 1, D.ZOOM 2) works in the zoom range above 8× magnification.



Checking the Recorded Scene

1 Press to pause the shooting.
- The "PAUSE" indication appears in the Viewfinder.

2 Press briefly.
- The "CHK" indication in the Viewfinder lights up, and the last 2-3 seconds of the last recorded scene will be played back in the Viewfinder. After that, the Movie Camera is again in the shooting pause mode.
("CHK" means Check)

Note:
During shooting, use this function to confirm from time to time that the recording has been performed correctly.

Shooting with Clean Edits

■ How to Add New Scenes at the End of Previous Shots

- This function makes it possible to achieve smooth transitions between a previously and a newly shot scene.

1 Insert the recorded video cassette.

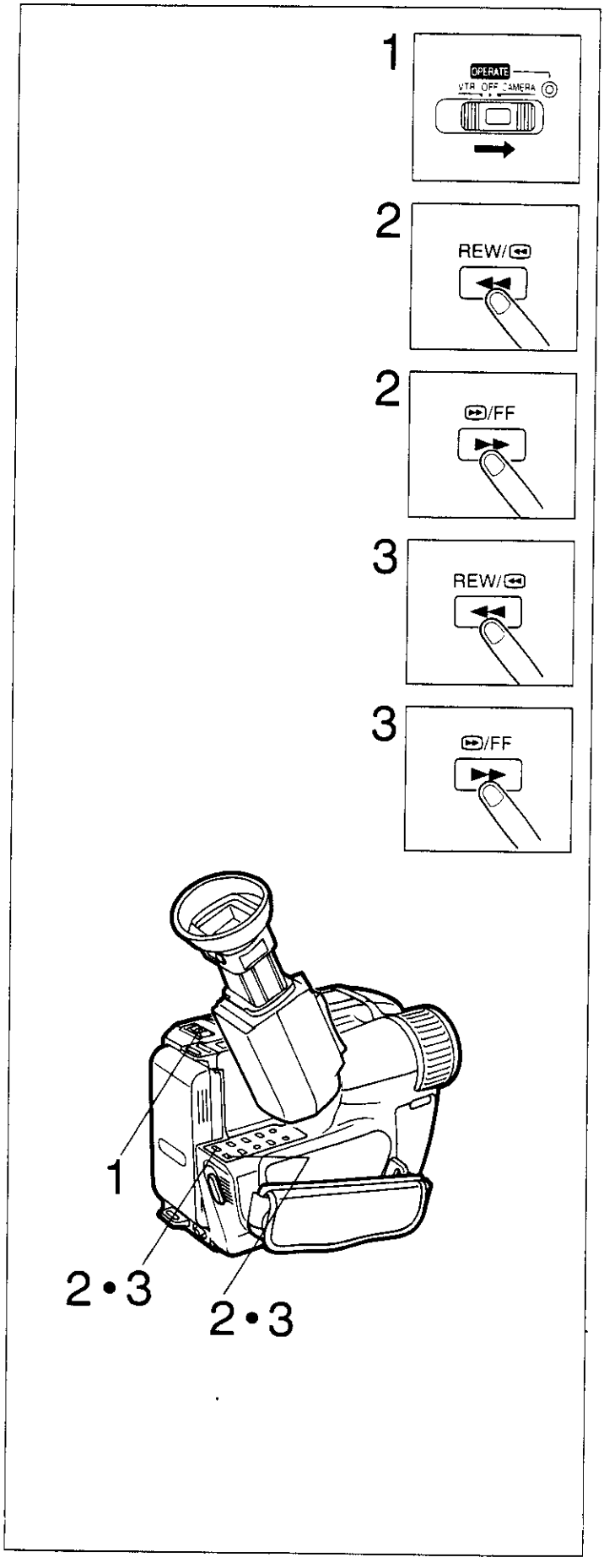
2 Press and slide to "VTR".
("VTR" means Video Tape Recorder.)

3 Press.

4 Press after reaching the point where you want to add the next scene.

5 Slide to "CAMERA".

6 Press to start shooting the new scene.
- **The shooting starts.**



Searching for a Previously Shot Scene

Using the Convenient Camera Search Function

■ How to Search for a Point in a Recorded Scene

After inserting the recorded video cassette:

1 Press and slide to "CAMERA".

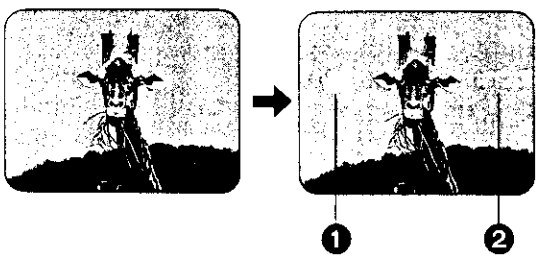
2 Keep pressed.

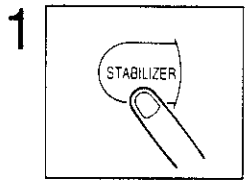
- While this button is kept pressed, the recorded scene will be played back at high speed in reverse direction.

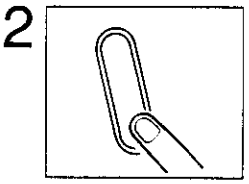
Or keep pressed.

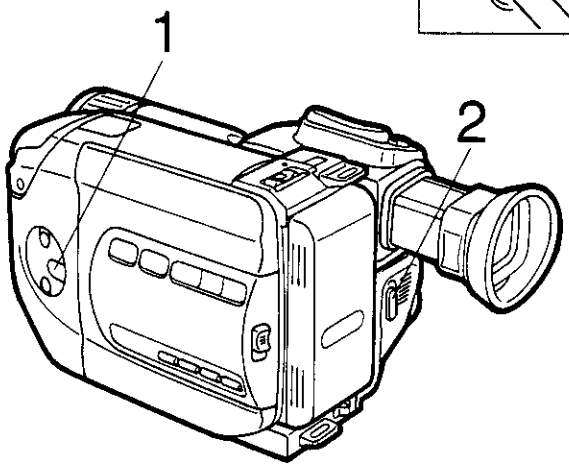
- While this button is kept pressed, the recorded scene will be played back at normal speed in forward direction.

3 Release this button after reaching the desired point.









Shooting with the Digital Image Stabilizer Function

This function automatically corrects the slight shaking of the camera that often occurs during hand-held camera shooting and zooming.
It is especially practical for the following shooting situations:
- Zooming in on a distant subject.
- Shooting while walking.
- Shooting from inside a moving car.

1 Press.

The Image Stabilizer Function is activated with the [STABILIZER] Button.
- When the Image Stabilizer Function is activated, the Indications ❶ (Image Stabilizer Indication "✋" and Shutter Speed Indication "1/120") appear in the Viewfinder.

2 Press.

- The recording starts.

■ To Cancel this Function...
Press the [STABILIZER] Button.

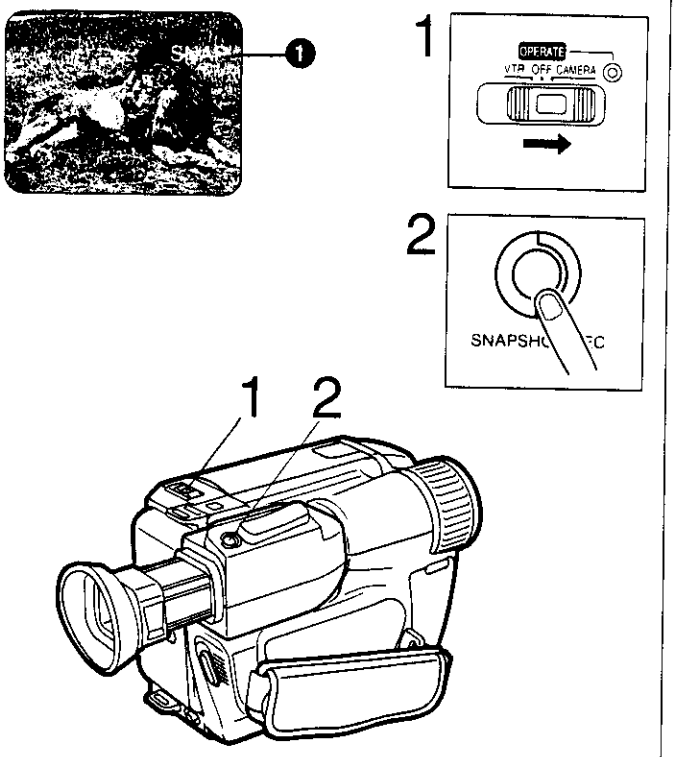
Notes:
- The subject appears slightly enlarged in the Viewfinder.
- The shutter speed is set to 1/120 second (the "1/120" Indication ❷ is displayed in the Viewfinder) instead of the normal 1/50 second (for which there is no indication).
- When shooting under weak illumination, the "✋" Indication flashes to indicate that the Image Stabiliser Function does not work.

Notes on Shooting with the Image Stabilizer Function

■ Shooting Conditions...
- The picture stabilizing effect may not be sufficient, if the shaking of the Movie Camera is very strong, or in the following shooting conditions:
 —A subject with horizontal or vertical stripes.
 —An extremely bright subject.
 —A subject under many fluorescent lamps.
 —A fast-moving subject.
- When shooting under fluorescent light, the brightness of the picture may fluctuate.
- The resolution of the picture will be slightly reduced.

■ Shooting with the High-Speed Shutter...
- When the Image Stabiliser Function is cancelled, the Shutter Speed is reset to 1/50, however if the [SHUTTER] Button is pressed to change the shutter speed while the Movie Camera is in the Image Stabiliser Mode, the shutter speed will remain at this setting when the Image Stabiliser Mode is cancelled.

■ Shooting with a Tripod...
- When shooting with a tripod, do not use the Image Stabilizer Function.



Taking a Snapshot

Using the Digital Shooting Function

- By pressing the [SNAPSHOT REC] Button, a still picture can be recorded for approx. 5 seconds.
 Since anyone can use this Movie Camera with the same ease as a photo camera, it's easy to ask somebody to take your picture by pressing the [SNAPSHOT REC] Button. This makes it even easier for you to get into your own video movies.

1 Press and slide to "CAMERA".

2 Press.

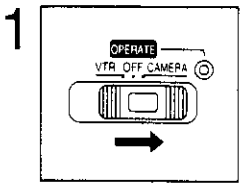
- During the snapshot shooting, the "SNAP" Indication ❶ is displayed in the Viewfinder.
- The still picture will be recorded for approx. 5 seconds and the Movie Camera will then switch back to the shooting pause mode.

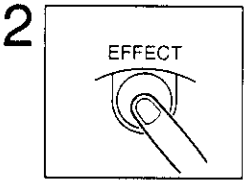
Hints for Shooting Snapshot Pictures

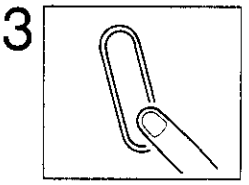
By combining this function with the High-Speed Shutter Function, it is possible to shoot still pictures of fast actions for motion analysis.

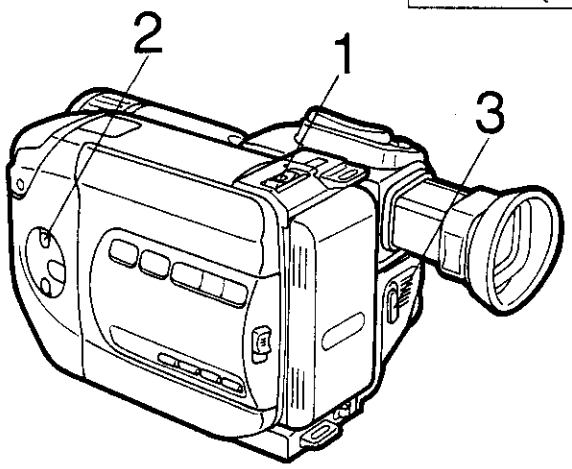
- To prevent picture distortion, do not move or shake the Movie Camera during Snapshot Recording.
- Since the still picture is recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.
- When the Snapshot Recording Function is used repeatedly, wait at least 2 to 3 seconds before pressing the [SNAPSHOT REC] Button again.











Shooting a Still Picture

Using the Digital Shooting Function

For Recording a Still Picture of any Desired Duration:

1 Press and slide to "CAMERA".

2 Press.

- The image in the Viewfinder stands still.
- By pressing the [EFFECT] Button repeatedly, the mode can be changed in the following order:

NORMAL → STILL → STROBE → MIRROR

3 Press.

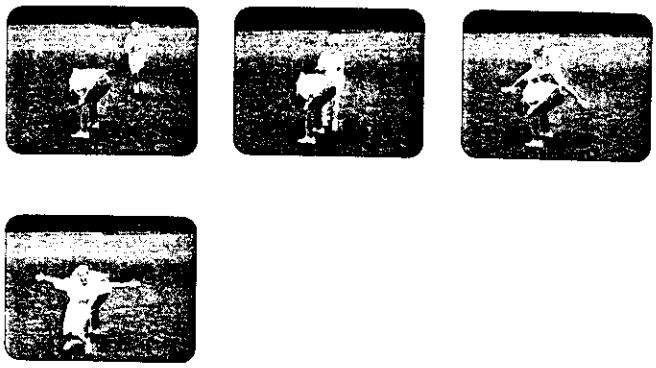
- The still picture in the Viewfinder will be recorded.

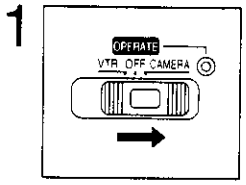
■ To Cancel this Function...

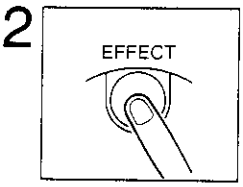
Press the [EFFECT] Button three times until normal movement in the Viewfinder is observed.

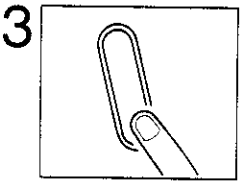
Hints for Shooting Still Pictures

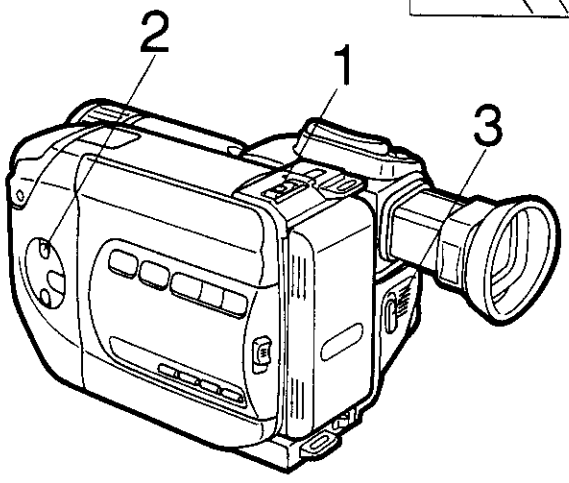
- To prevent picture distortion, do not move or shake the Movie Camera during still picture shooting.
- Since the still picture is recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.











Shooting with Strobe Effect

Using the Digital Shooting Function

For continuously recording 6 still images per second:

1 Press and slide to "CAMERA".

2 Press Twice.

- The picture in the Viewfinder will also have a strobe effect.

3 Press.

- Continuous shooting with strobe effect is now possible.

■ To Cancel this Function...

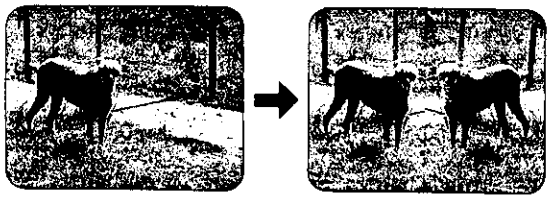
Press the [EFFECT] Button twice until normal movement in the Viewfinder is observed.

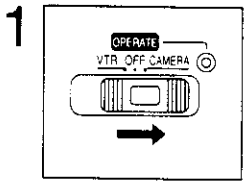
Hints for Shooting Pictures with Strobe Effect

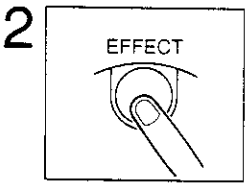
By combining the Strobe Function with the High-Speed Shutter, the strobe effect can be increased. (For outdoor shooting, the 1/250-second shutter speed is recommended.)
(See page 34.)

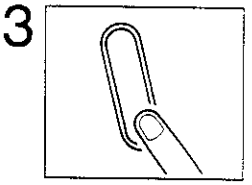
Notes:

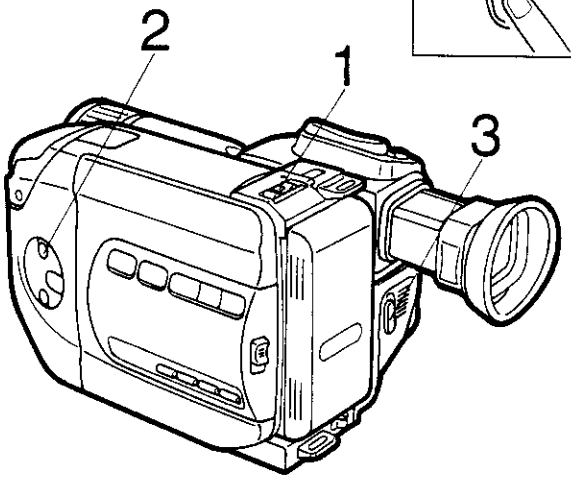
- When shooting under fluorescent lamps, the brightness of the picture may fluctuate.
- Since the strobe pictures are recorded from the digital image memory, the picture quality may be slightly inferior to that of normally recorded pictures.











Shooting with the Mirror Effect

Using the Digital Shooting Function

When recording a moving picture in the Mirror Mode, the right half of the picture is a mirror image of the left half.

1 Press and slide to "CAMERA".

2 Press three times.

- The right half of the picture in the Viewfinder is now a mirror image of the left half.

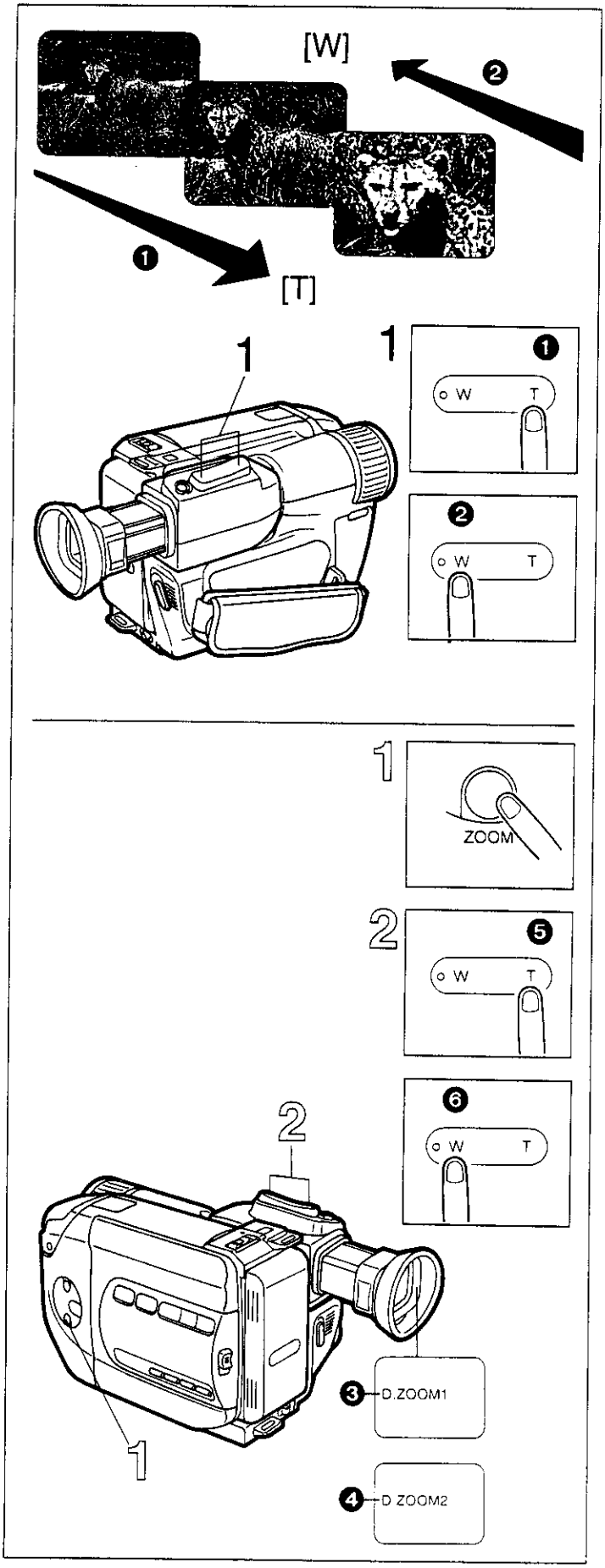
3 Press.

- The mirror image is now being recorded.

■ To Cancel this Function...

Press the [EFFECT] Button once until normal movement in the Viewfinder is observed.

- Since the picture is recorded from the digital memory, the picture quality may be slightly inferior to that of normally recorded pictures.



Shooting with the Zoom Function

Using the Power Zoom Function

To make your zoom shots more impressive and to achieve exactly the desired effect, do it like the professionals: before actually shooting, make a trial run of the zooming.

1 Keep pressed for telephoto.
(subject appears closer ❶)

Keep pressed for wide-angle.
(subject apears farther away ❷)

The zoom speed can be varied in 2 steps.
For faster zooming, press the [W] or [T] Button strongly.
For slow zooming, press either of these buttons lightly.

■ Using the Digital Zoom Function

The digital Zoom Function makes it possible to zoom in on a subject and enlarge it by up to 36 times by using the [ZOOM] Button and the [T] Zoom Button.

3 zoom ranges can be selected as follows.
×1 ↔ ×8 No indication.
×1 ↔ ×12 "D.ZOOM 1"
×1 ↔ ×36 "D.ZOOM 2"

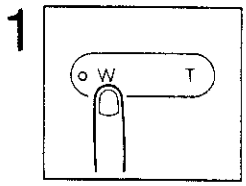
1 Press and select the desired zoom range.
- When the "D.ZOOM 1" Indication ❸ appears in the Viewfinder, the zoom range is expanded to up to ×12.
- When the "D.ZOOM 2" Indication ❹ appears in the Viewfinder, the zoom range is expanded to up to ×36.

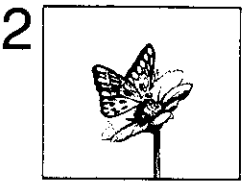
2 Press ❺ or ❻.
- The Magnification Ratio Indication is displayed in the Viewfinder.
 The figure corresponding with the selected magnification is displayed and it changes only when the [W] or [T] Button is kept pressed.

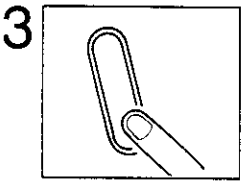
■ To Cancel this Function...
Press the [ZOOM] Button once or twice.
- The "D.ZOOM 1" or "D.ZOOM 2" Indication disappears in the Viewfinder.

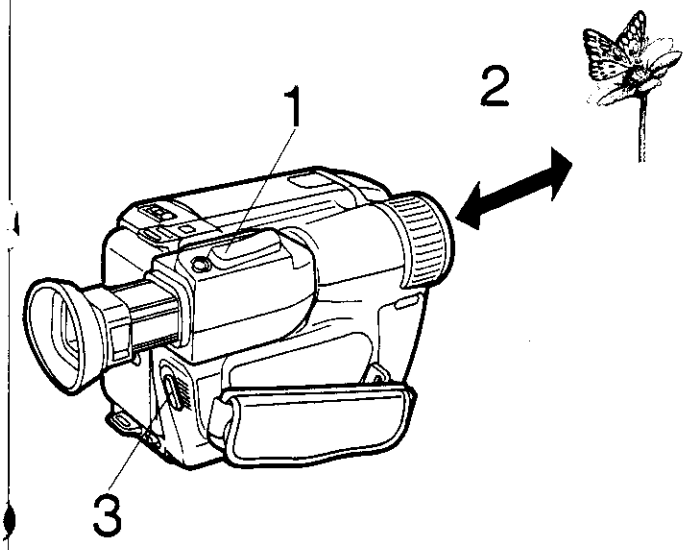
Notes:
- When the Digital Zoom Function is turned off, the zoom range is limited to ×8.
 However, when the Digital Image Stabilizer Function is activated, the zoom range is extended to up to ×9.
- When the Digital Zoom Function is activated, the picture is magnified electronically.
- The Digital Zoom Function slightly decreases the picture resolution and fine picture details.
- When zooming in on a subject all the way to the maximum tele position, slight after-image distortion may occur.
- When zooming in the extreme tele range (near the 36× setting, using the Digital Zoom) while the Image Stabilizer Function is activated, slight after-image distortion may occur.
 When shooting under very bright conditions, the after-image car be eliminated by selecting a shutter speed of 1/250 or 1/500 sec.











Shooting with the Macro Function

Using the Macro Close-up Function

The Macro Close-up Function makes it possible to shoot very small objects, photos, printed matter, insects and many other things.

1 Keep pressed to zoom to the maximum wide-angle position.

2 Approach the subject to the desired distance.

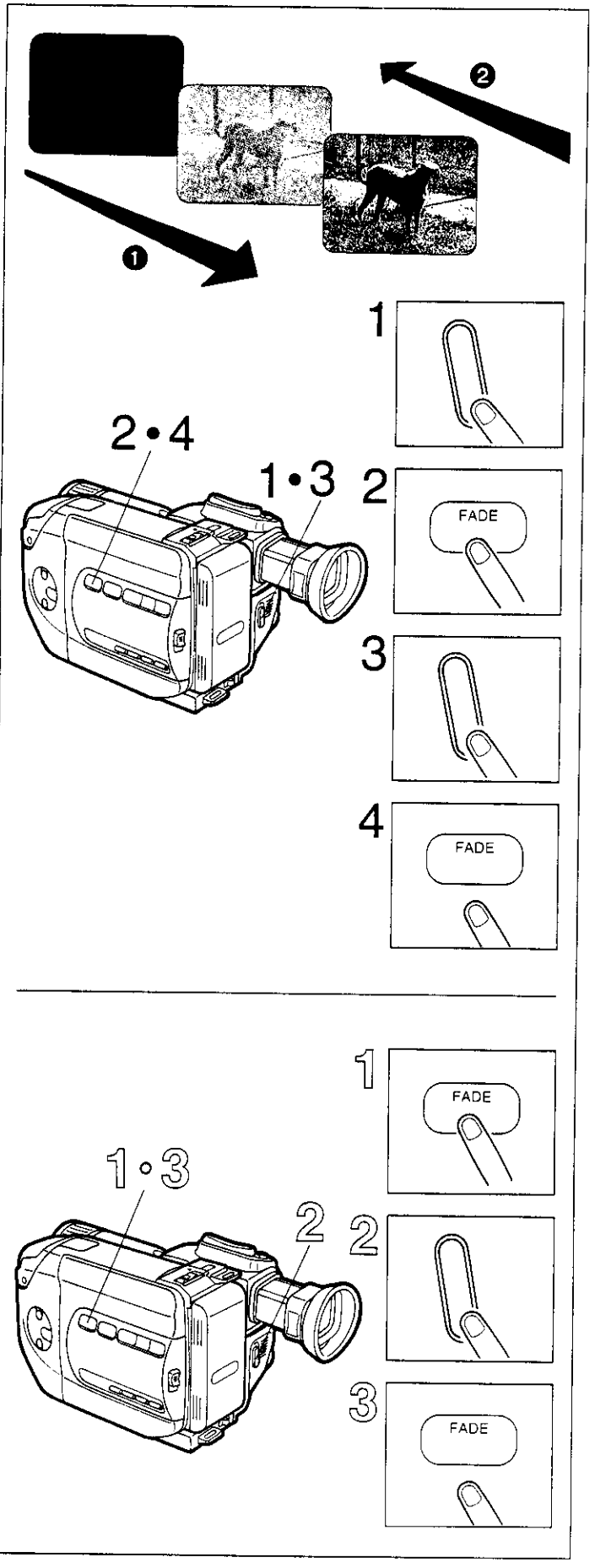
- The focus will be adjusted automatically (Auto Focus Mode).

3 Press.

- The shooting starts.

Hints for Shooting with the Macro Close-up Function

- To get more or less of the subject into the picture, change the distance between the lens and the subject; do not use the [W] or [T] Zoom Button.
- As the depth of field is very small in macro shooting, even slight camera movements can cause the subject to go out of focus. Therefore, it is recommended to use a tripod (optional).
- When shooting pictures in a photo album or a similar situation with insufficient lighting, use a Video DC Light (optional). (See page 55.)
- When the zoom lens is in its maximum telephoto position, the minimum shooting distance between lens and subject is 1 m.
- In macro close-up shooting, the subject can be approached down to a minimum distance of 5 mm between lens and subject. It is recommended to use the Auto Focus Mode. However, with a stable camera position (tripod, etc.), the Manual Focus Mode can also be used.



Shooting with the Fade Function

Using the Fade-in and Fade-out Functions

■ How to Fade in ❶

Fading in from black is very effective at the beginning of a movie and for soft transitions between scenes.

1 **Press to pause the shooting.**

2 **Keep pressed.**

3 **After the picture in the Viewfinder has disappeared, press to start the shooting.**

4 **After about 3 seconds, release the button.**

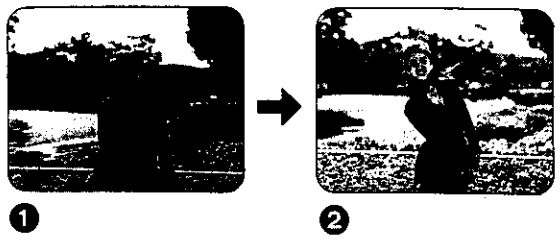
■ How to Fade out ❷

Fading out to black is convenient at the end of a scene to create a soft ending.

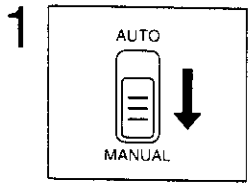
1 **Keep pressed during shooting.**

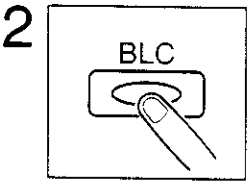
2 **After the picture has disappeared, press to stop the shooting.**

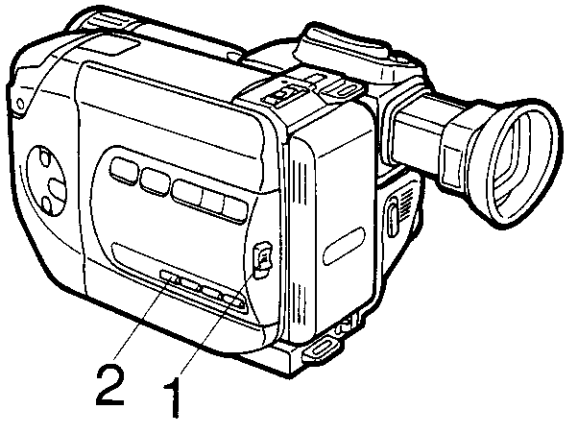
3 **Release the button.**

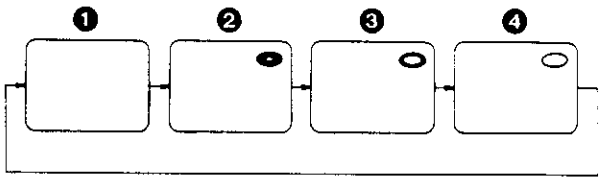


❶ ❷









Shooting Backlit Scenes

This function makes it possible to brighten up the subject when shooting a backlit scene, e.g. people outdoors with the sun in their back, or a person indoors in front of a window.

1 Set the Mode Selector Switch to "MANUAL".

2 Press to select the degree of the backlight compensation according to the backlight conditions.

- The " ⬭ " Indication appears ❷ in the Viewfinder.

By pressing the [BLC] Button repeatedly, the brightness of the picture can be increased in 3 steps.

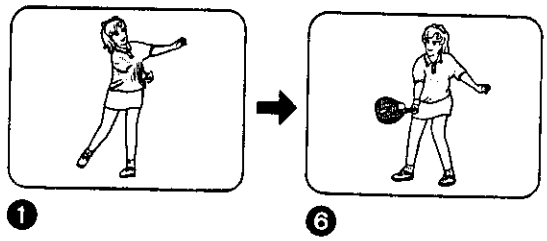
❶ No backlight compensation
↓
❷ Low backlight compensation
↓
❸ Medium backlight compensation
↓
❹ High backlight compensation

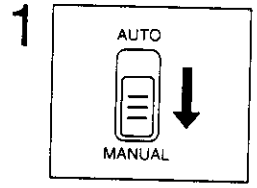
■ To Return to the Standard Iris Setting...

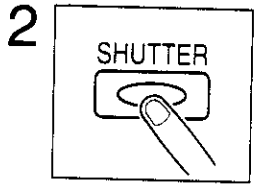
- Press the [BLC] Button repeatedly until neither the " ⬭ ", " ⬭ " nor " ⬭ " Indication in the Viewfinder is displayed any longer.
- Returning to the standard iris setting is also possible by setting the Mode Selector switch to "AUTO". (The Focus, High Speed Shutter and White Balance modes can also be reset to "AUTO" in this way.)

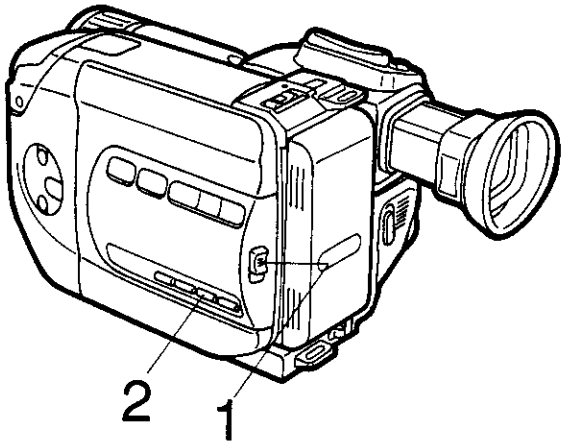
Cautions for Shooting Backlit Subjects

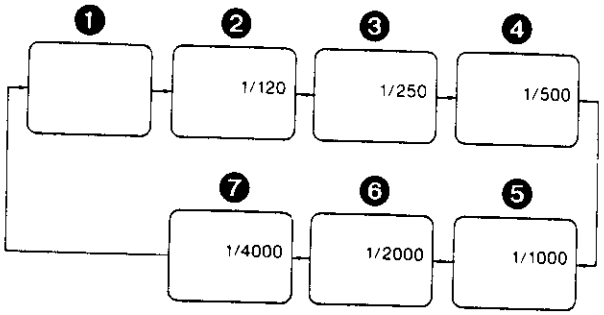
- The sky may become whitish.
- In case of extremely strong backlight, it may not be possible to brighten up the subject sufficiently.
- When shooting with the sun striking the subject at an angle, star shaped figures may be recorded due to reflection of the light.











Shooting Fast-Moving Subjects

Using the High-Speed Shutter Function

A range of different high shutter speeds makes it possible to shoot scenes with fast movements. When scenes recorded with a high shutter speed are later played back on a VTR equipped with super still and super fine slow motion functions, still and slow motion playback with very sharp picture contours and brilliant details can be obtained.

1 Set to "MANUAL".

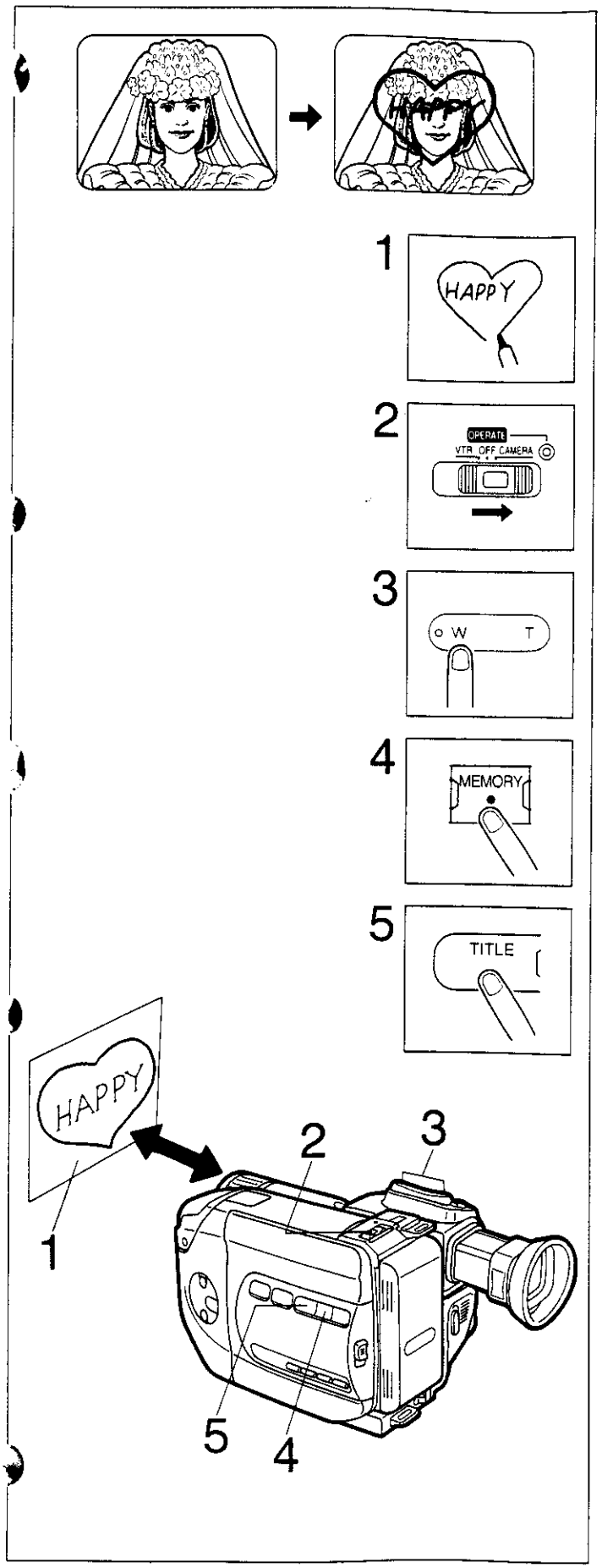
2 Press repeatedly to select the desired shutter speed.

- The shutter speed changes in the following sequence.

❶ 1/50 (No indication) Normal → ❷ 1/120 → ❸ 1/250 → ❹ 1/500 → ❺ 1/1000 → ❻ 1/2000 → ❼ 1/4000 → ❶

Conditions for Shooting with the High-Speed Shutter

- The subject must be brightly lit by sunlight or other strong illumination, with little shade.
- When shooting under fluorescent lamps, the picture will be adversely influenced by flickering.
- When the picture is played back in the normal playback mode, the picture movement may not be as smooth as normally.
- The playback picture will be slightly darker than the picture recorded without using the High-Speed Shutter Function.



Inputting a Title into the Memory

Using the Digital Title Memory Function

- The Digital Title Memory Function makes it possible to input a title into the memory, to recall it later during shooting by pressing a button and to superimpose it onto the normal moving picture.
- Inputting a title into the memory can be performed while the Movie Camera is in the shooting pause mode.

1 Prepare a title.

- The title should have strong contrast (e.g. title written with black felt pen on white paper, printed title, street sign, calendar).

2 Press and slide to "CAMERA".

3 Adjust the focus.

- For small titles, use the Marco Close-up Function.
- The title should be in the centre of the Viewfinder screen because a part at the top and bottom edge of the title image will be cut off when it is superimposed during shooting.

4 Press for at least half a second.

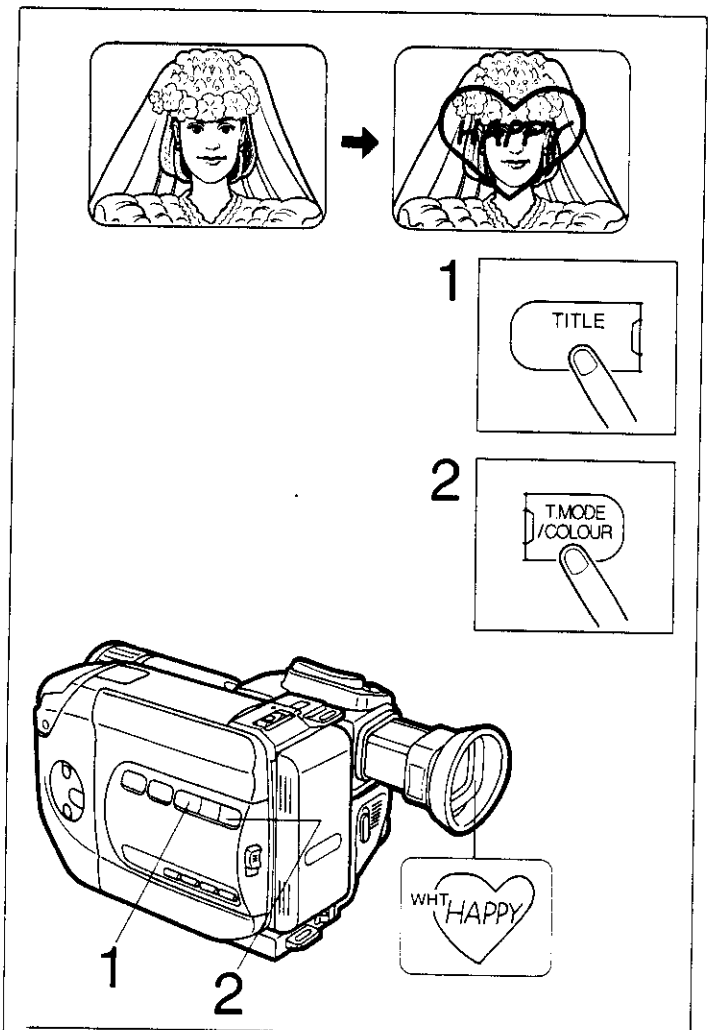
- The title is memorised.

5 Press to make the title disappear from the Viewfinder.

- Pressing this button repeatedly will make the title appear, disappear, appear in the Viewfinder.

Notes:

- The title remains in the memory until a new title is input [or until the Button Type Battery (back-up) is exhausted].
- If the [TITLE] Button is pressed by mistake during shooting, the title will be superimposed and recorded.



Selecting the Title Colour

1 Press.

- The memorised title appears in the Viewfinder.

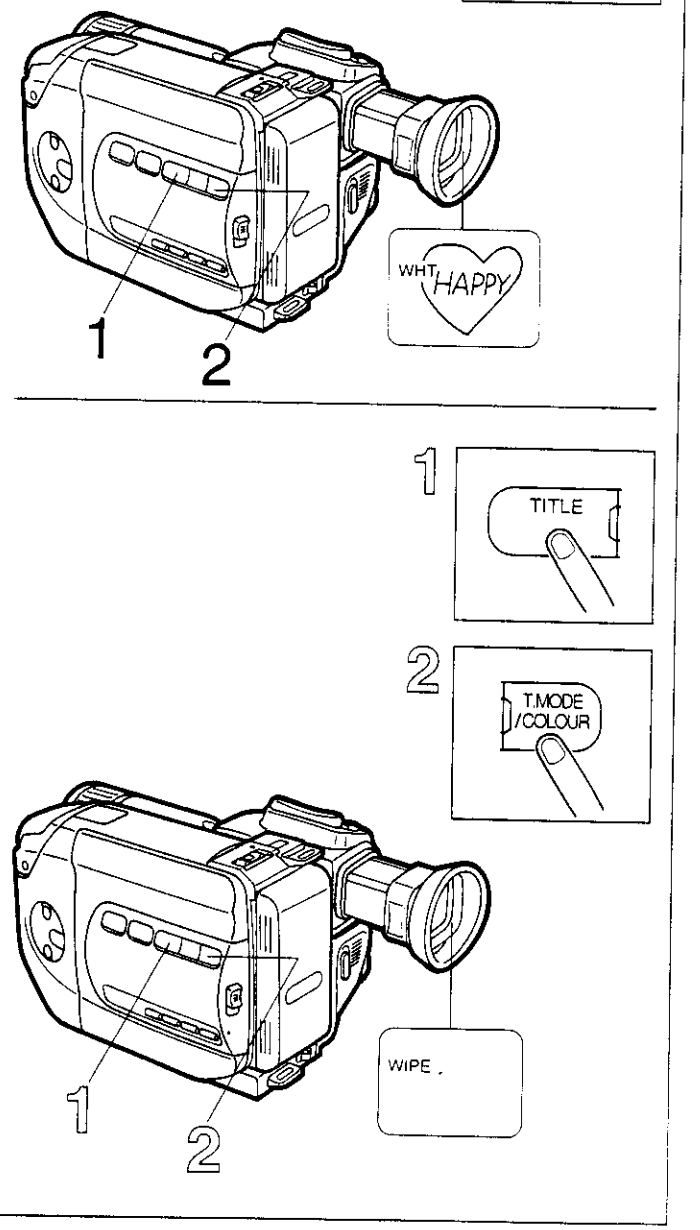
2 Press repeatedly to select the colour.

- By repeatedly pressing this button, the colour of the title can be changed in the following order. (This function can also be used while the title is already being recorded.)

❶ WHT (White) → ❷ YEL (Yellow) → ❸ RED (Red) → ❹ MAG (Magenta) → ❺ BLU (Blue) → ❻ CYN (Cyan) → ❼ GRN (Green) → ❽ BLK (Black) → ❶ WHT

Notes:

- Input a title into the memory before selecting the title colour.
- The title colour cannot be selected when the title is not displayed in the Viewfinder.



Selecting the Title Mode

1 Press again to make the title disappear from the Viewfinder.

2 Press repeatedly to select the Title Mode.

- By repeatedly pressing this button, the way in which the title is superimposed onto the picture being recorded can be changed in the following order.

❶ (NORMAL) → ❷ WIPE ↓ → ❸ WIPE ↑ → ❹ SCROL

❶ The title will appear immediately.

❷ The title will appear gradually from the top.

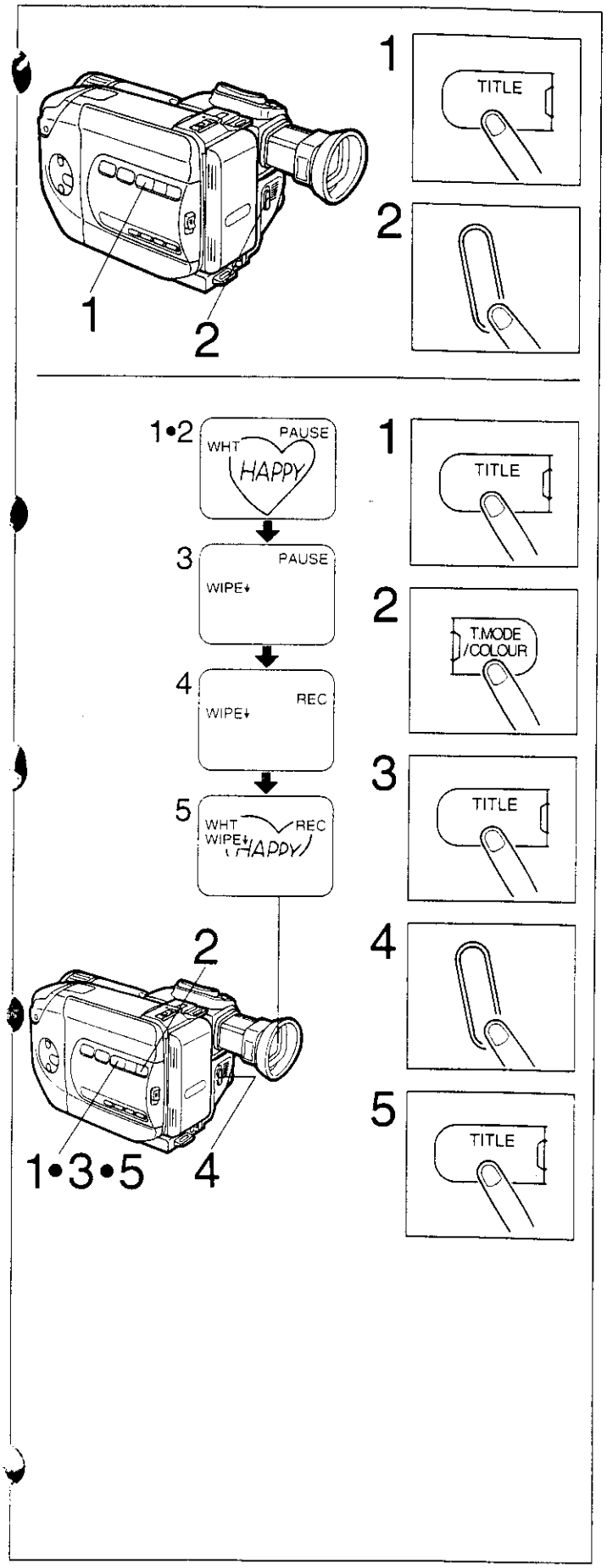
❸ The title will appear gradually from the bottom.

❹ The title will scroll in from the bottom.

- To confirm how the title will later appear during shooting, press the [TITLE] Button again. It will now appear in the selected mode, and the selected colour will also be indicated in the Viewfinder.

Notes:

- Input a title into the memory before selecting the title mode.
- The title mode cannot be selected when the title is displayed in the Viewfinder.



Recording the Memorised Title during Shooting

■ Superimposing a Title at the Beginning of a Shot.

1 Press to make the title appear in the Viewfinder.

- Confirm by the indications in the Viewfinder that the selected colour is as desired. At this time, it is still possible to change the colour.

2 Press to start shooting.

■ Superimposing a Title in the Wipe or Scroll Title Mode at the Beginning of a Shot.

1 Press to make the title appear in the Viewfinder.

2 Press to select the title colour.

3 Press to make the title disappear from the Viewfinder.

- Confirm by the indications in the Viewfinder that the selected title mode is as desired. At this time, it is still possible to change the title mode.

4 Press to start shooting.

5 After approx. 2 seconds, press.

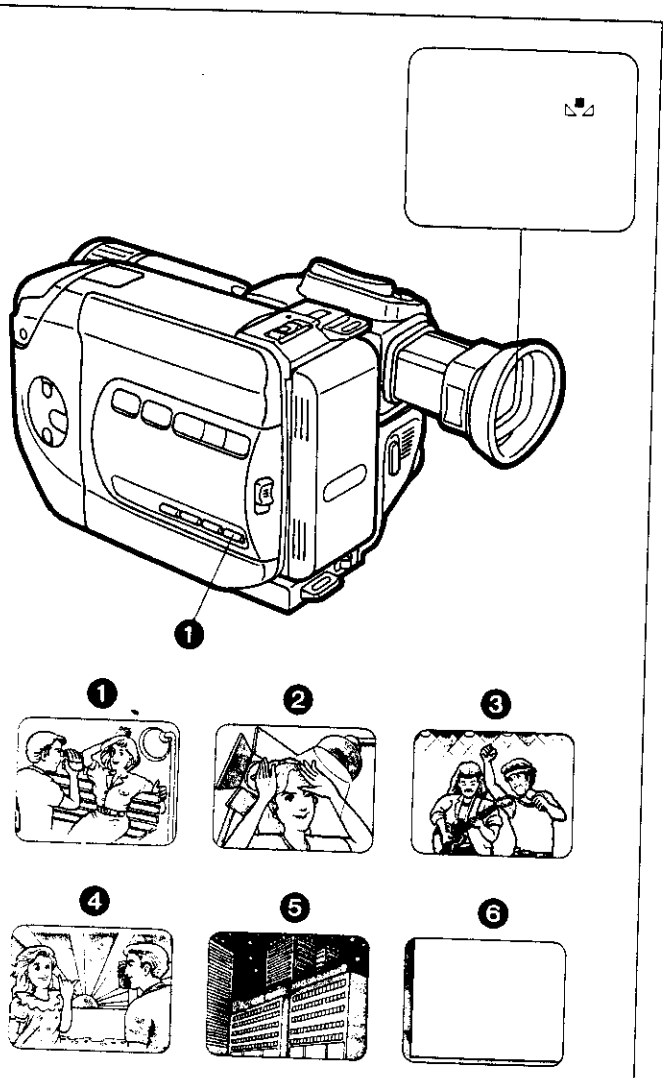
- The wipe or scroll title will appear in the Viewfinder and it will be recorded in the same way.

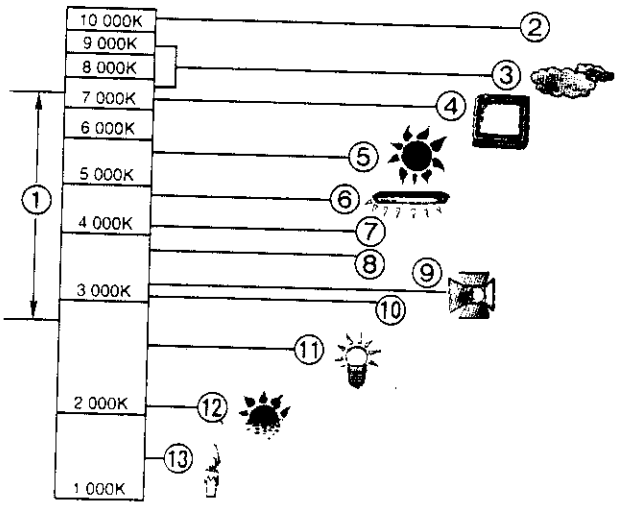
■ Superimposing a Title during Shooting

- At the point where you want to insert the title, press the [TITLE] Button. (The title appears in the Viewfinder in the selected title mode and selected colour. At the same time, it is superimposed onto the scene that is being shot.)

■ To Stop the Superimposition of the Title

Press the [TITLE] Button again.





Automatic White Balance Adjustment

Using the Automatic White Balance Adjustment Function

To attain recordings with natural colours, it is necessary to adjust the sensor in the camera to the existing colour of the light. This adjustment is called white balance adjustment.

The Auto White Balance Adjustment Function provides satisfactory results under almost all shooting conditions. (No operation is necessary.)

When the " " Indication is displayed in the Viewfinder, the Movie Camera is not in the Auto White Balance Mode.
To put it in the Auto White Balance Mode, press the [W.B] Button ❶ (the White Balance Adjustment is now set to the Auto Mode) or set the Mode Selector Switch to "AUTO".

- The " " Indication in the Viewfinder will disappear.
- If the Movie Camera is moved from outdoors to indoors during shooting, the picture will initially take on a slightly reddish cast but it will gradually regain its natural colours.
- In the following shooting situations, the Auto White Balance Adjustment Mode may not provide satisfactory results; use the Manual White Balance Adjustment Mode instead:

❶ When shooting under mercury-vapor, natrium or some types o fluorescent lamps.

❷ When intense lighting is used, e.g. from a halogen lamp, or when the colour temperature of the light source is low.

❸ When shooting under lighting conditions which change suddenly.

❹ When shooting outdoors at sunrise or sunset.

❺ When shooting under firework illumination outdoors at night.

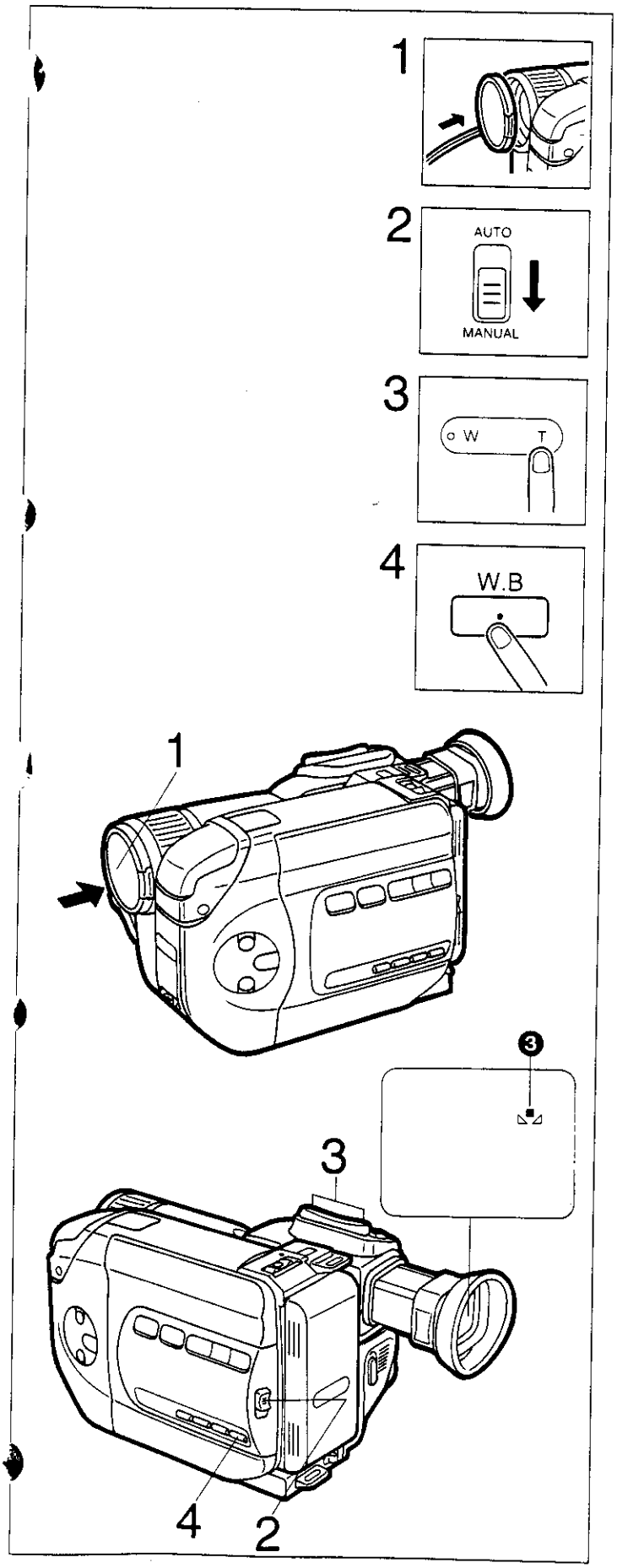
❻ When shooting a subject of a single colour or a subject in front of a single-colour background.

- When shooting under weak illumination.
- When using a grey filter (ND) or other special filters.
- When using a conversion lens.

■ What is the Colour Temperature of the Light Source

The colour temperature of the light source is measured in Kelvin (K). The higher the Kelvin value, the more bluish the light is; the lower the value, the more reddish the light is. This is not directly related to the brightness.

① Control range of the Auto White Balance
② Blue sky
③ Cloudy sky
④ TV screen
⑤ Sunlight
⑥ White fluorescent light
⑦ 2 hours after sunrise or before sunset
⑧ 1 hour after sunrise or before sunset
⑨ Halogen light bulb
⑩ 30 minutes after sunrise or before sunset
⑪ Incandescent electric light bulb
⑫ Sunrise or sunset
⑬ Candlelight



Manual White Balance Adjustment

■ **If there is only one light source:**

1 Attach the Lens Cap to the Lens.

2 Set to "MANUAL".

3 Keep pressed until the screen in the Viewfinder becomes completely white.

4 Press briefly so that the " ◺■◿ " Indication appears. Then keep this button pressed for more than 1 second.

The following indications in the Viewfinder inform about the state of the adjustment:

❶ " ◺■◿ " flashes slowly Not adjusted

❷ " ◺■◿ " flashes rapidly During adjustment

❸ " ◺■◿ " is lit Adjustment is finished
The Movie Camera is now ready for shooting.

■ **To Change Back to the Auto White Balance Adjustment Mode...**

Press the [W.B] Button, or set the Mode Selector Switch to "AUTO".

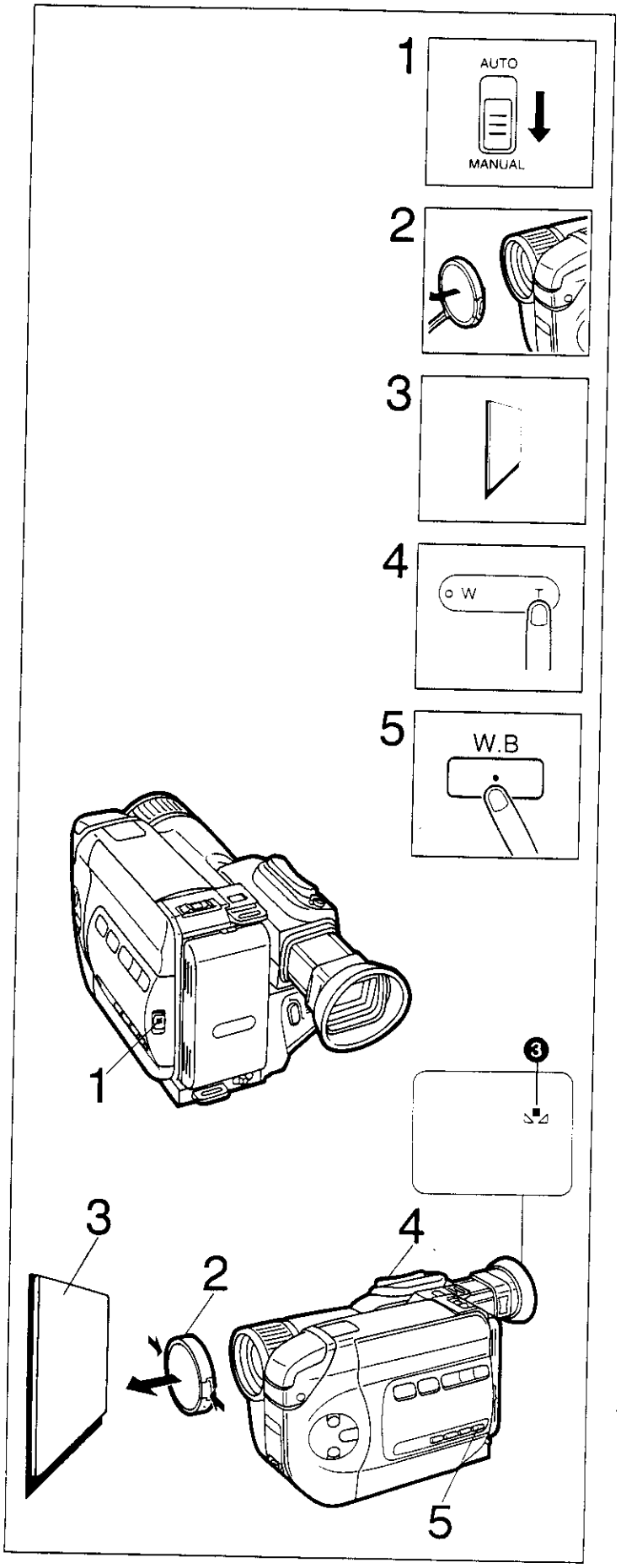
•The " ◺■◿ " Indication in the Viewfinder will disappear.

■ **Automatic Recall of the Previous White Balance Setting**

•After setting the [OPERATE] Switch to "OFF" and later to "CAMERA" again, the " ◺■◿ " Indication flashes slowly, however, the previous white balance setting is still maintained.
However, to ensure the best possible colour reproduction, adjust the white balance again.
The previous white balance setting is also maintained after pressing the [REW/⏮] Button to confirm the end of the previously recorded scene.
However, after removing the Battery Pack (or disconnecting the AC Adaptor from the Movie Camera) the previous white balance setting is no longer maintained.

•When moving the Movie Camera from indoors to outdoors or vice versa, be sure to adjust the white balance again, as the colour of the light has changed considerably.

Manual White Balance Adjustment (cont'd)



■ **If there are several light sources or if the illumination is weak (indoors, etc.):**

1 Set to "MANUAL".

2 Remove the Lens Cap.

3 Point the Movie Camera at white paper or at another purely white object.

4 Keep pressed until the screen in the Viewfinder becomes completely white.

5 Press briefly so that the " " Indication appears. Then keep this button pressed for more than 1 second.

The following indications in the Viewfinder inform about the state of the adjustment:

❶ " " flashes slowly Not adjusted

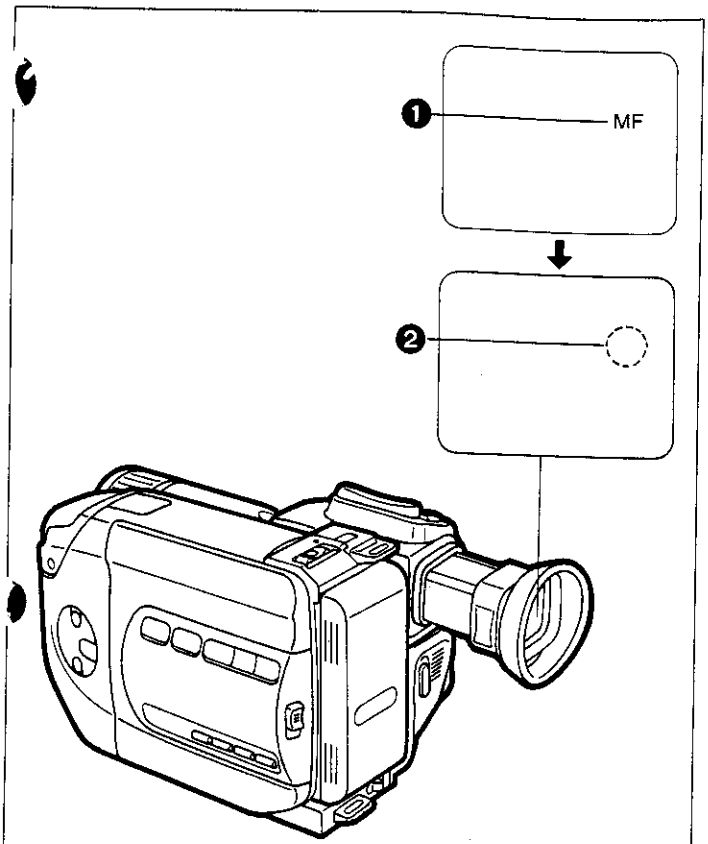
❷ " " flashes rapidly During adjustment

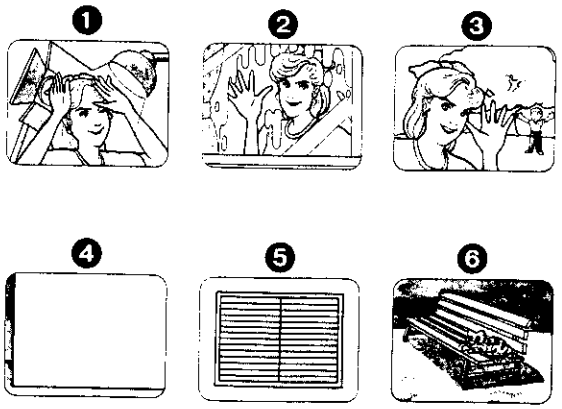
❸ " " is lit Adjustment is finished
The Movie Camera is now ready for shooting.

■ **To Change Back to the Auto White Balance Adjustment Mode...**

Press the [W.B] Button, or set the Mode Selector Switch to "AUTO".

•The " " Indication in the Viewfinder will disappear.





Focusing

■ Using the Automatic Focus Function

This Movie Camera focuses automatically on almost all subjects. (No operation is necessary.)

When the "MF" Indication ❶ is not displayed in the Viewfinder, the Movie Camera is in the Auto Focus Mode.
("MF" means Manual Focus)
- The focus is automatically adjusted to the subject in the centre of the Viewfinder.

■ When the "MF" Indication Is Displayed in the Viewfinder ❶...

Press the [FOCUS] Button (the Focus Adjustment is now set to the Auto Mode) or set the Mode Selector Switch to "AUTO".
- The "MF" Indication in the Viewfinder will disappear ❷.

In the following shooting situations, the Auto Focus Mode may not provide satisfactory results; use the Manual Focus Mode instead.

❶ Shiny surfaces. Subjects with backlighting or much light reflection.

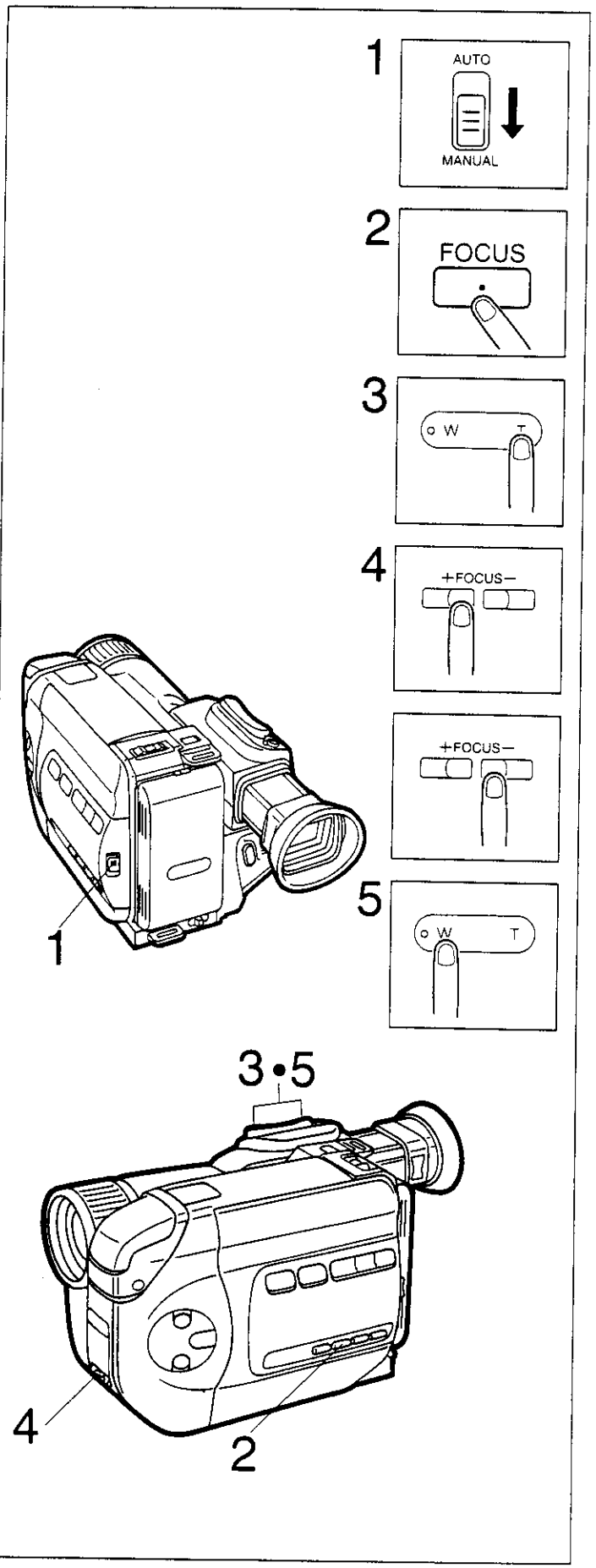
❷ A subject behind dirty glass.

❸ A subject with a part of it near the Movie Camera and another part far away from it.

❹ A flat surface, e. g. a white wall.

❺ A subject with horizontal stripes.

❻ An oblique subject.
- A fast-moving subject.
- A subject with a dark surface.
- When using the Macro Close-up Function, special lenses or filters.



Focusing (cont'd)

■ Using the Manual Focus Function

1 Set the Mode Selector Switch to "MANUAL".

2 Press.
- The "MF" Indication appears in the Viewfinder.

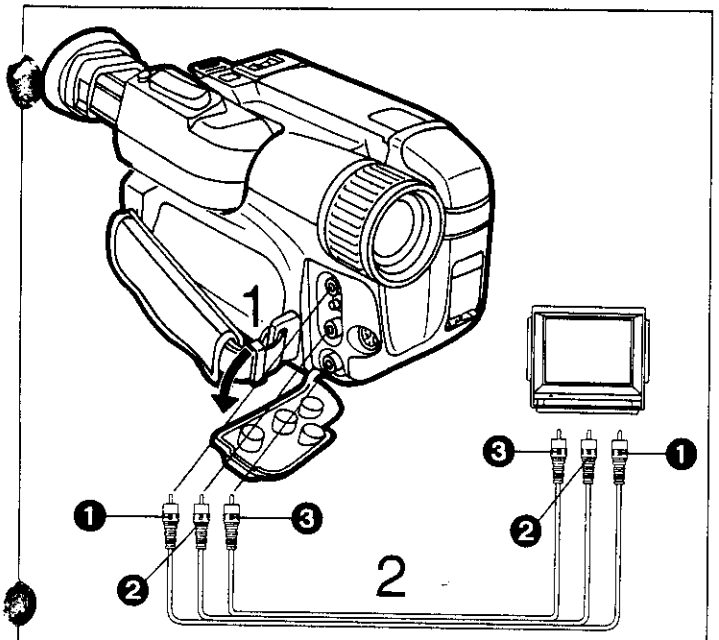
3 Press to zoom in on the subject to be focussed.

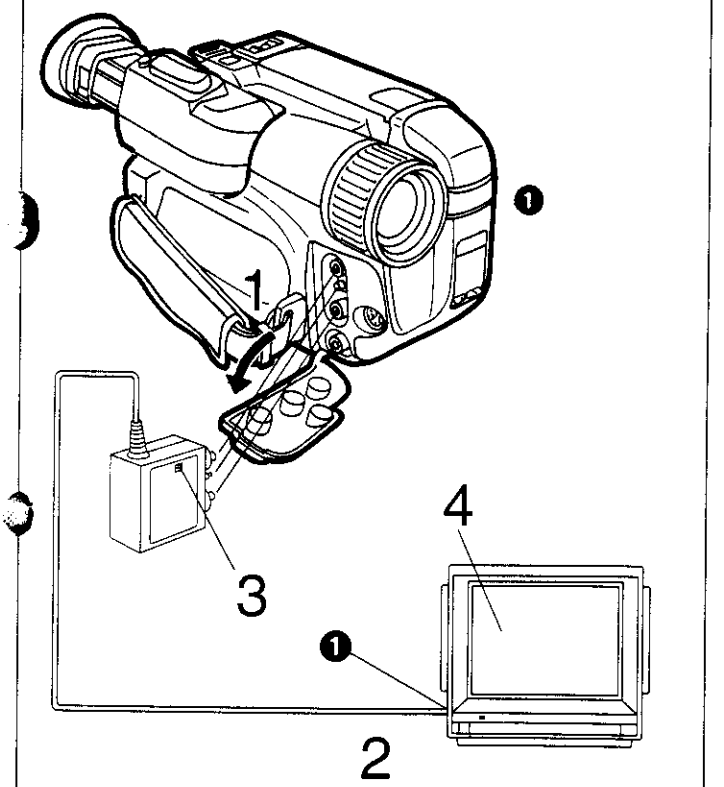
4 Press the [+] or [−] Button to adjust the focus.

5 Press to zoom back as desired.

■ To Change back to the Auto Focus Mode...
Press the [FOCUS] Button, or set the Mode Selector Switch to "AUTO".
- The "MF" Indication in the Viewfinder will disappear.

Note:
When using the Manual Focus Mode, always adjust with the Zoom Lens in its maximum tele setting. This ensures that the subject remains precisely focused throughout the zoom range from the maximum tele to maximum wide-angle setting.





Australia model only:

FOR YOUR SAFETY:
Install any external aerial to AS 1417.1

Playback via a TV Set (Connections)

■ Playback via a TV Set with AV Input Socket

(Using the Supplied AV Output Cable)

- Turn off the Movie Camera and the TV set.

1 Open the Socket Cover.

2 Connect the Movie Camera to the TV set.

(AV Output Cable is supplied.)

Movie Camera		TV Set
Video Output Socket ❶	⟷	Video Input Socket ❶
Audio Output Socket (L) ❷	⟷	Audio Input Socket (L) ❶
Audio Output Socket (R) ❷	⟷	Audio Input Socket (R) ❶

■ Playback via a TV Set without AV Socket

[Using the RF Adaptor (optional)]

- Turn off the Movie Camera and the TV set.

1 Open the Socket Cover.

2 Connect the Movie Camera to the TV set.

Movie Camera — TV Set

❶ VIDEO OUT / RF DC OUT / AUDIO OUT ⟷ RF adaptor ⟷ ❶ RF IN

3 Set the PAL System Selector Switch to the correct position.

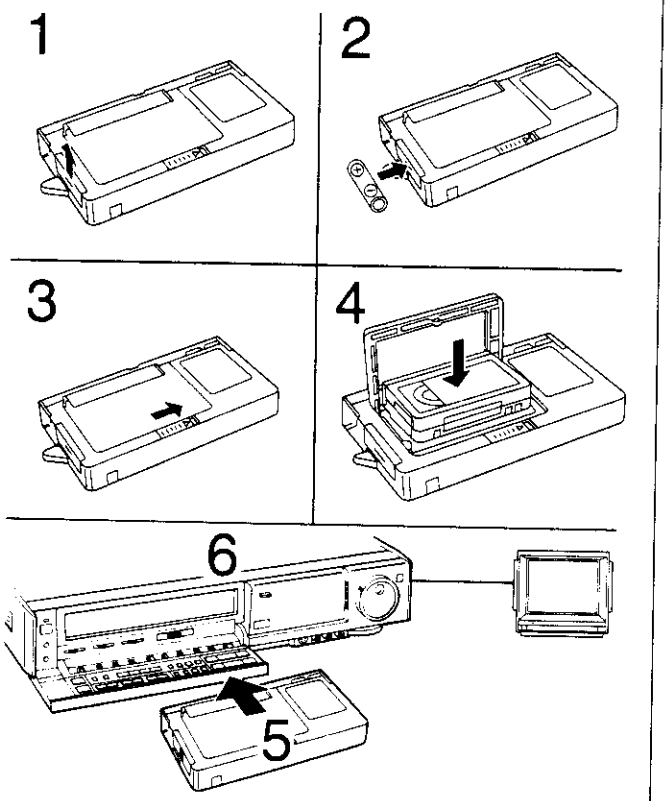
For the Southeast Asia region, set the RF Converter Channel Selector at "G" position.

4 Select an unused TV programme position (channel).

- Follow the tuning procedure outlined in the instruction booklet for your TV set to re-tune your TV set to the UHF transmission channel 36. The camera picture now appears on the TV screen.
- If in doubt, consult your local video dealer.

Note:

When an RF Adaptor is used the playback sound will be in mono.



Playback on a Video Tape Recorder (VTR)

■ **Using the Supplied Cassette Adaptor**

1 **Push the Cover upward and remove it.**

2 **Insert the supplied battery and reattach the Cover.**

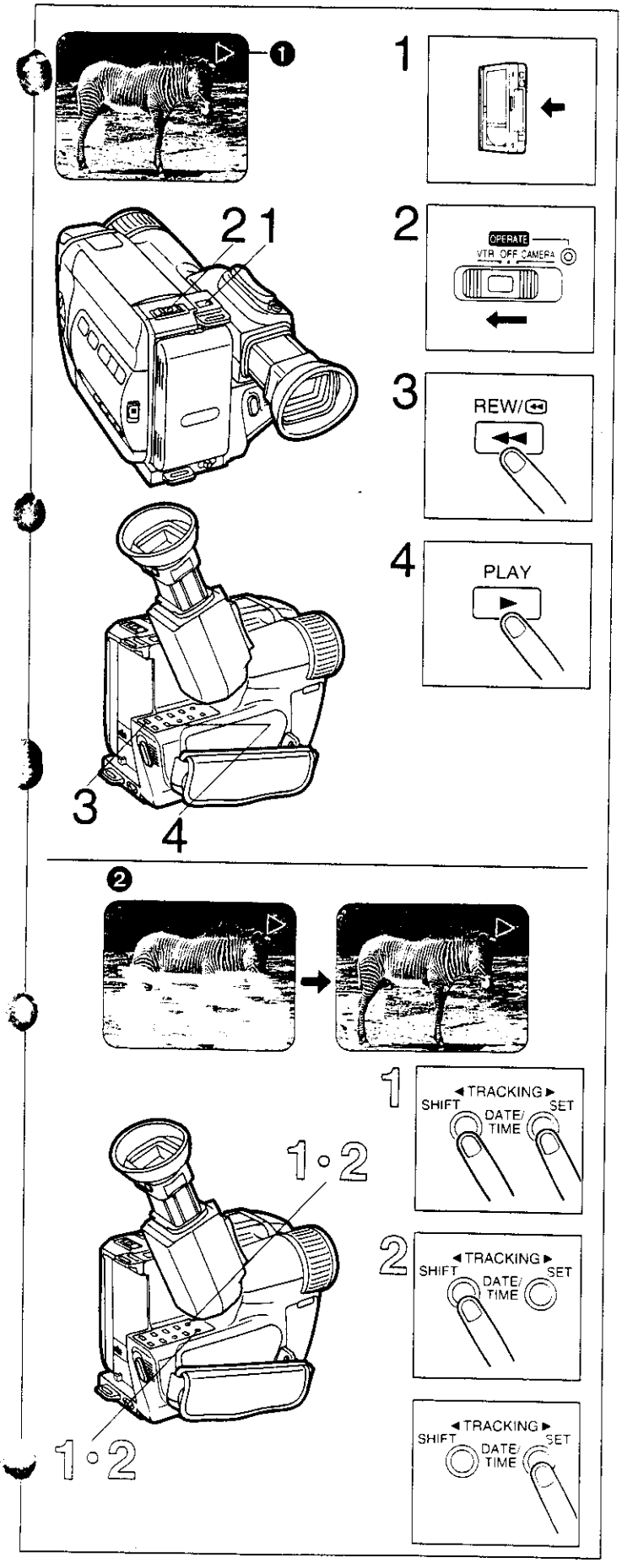
3 **Slide the Open Button.**

4 **Insert the recorded Compact Video Cassette and close the Top Cover.**

5 **Insert the Cassette Adaptor into your VTR.**

6 **Start the playback operation of the VTR.**

- For optimum picture quality, it may be necessary to adjust the tracking control on the VTR.
 (See the Operating Instructions of your VTR.)
- Do not insert this Cassette Adaptor into a VTR and take it out again without running the tape, because this could loosen the tape.
- When loading the cassette into the Cassette Adaptor, do not touch the tape directly. After use, take the video cassette out of the Cassette Adaptor.
- Never insert the Cassette Adaptor without a video cassette into a VTR.



Playback

■ How to Play Back in the Viewfinder (Playback from the Beginning of the Tape)

- The recorded tape can be played back in the Viewfinder or on a connected TV set.

1 Insert the recorded video cassette.
(See page 18.)

2 Press and slide to "VTR".

3 Press.
- The tape will stop automatically when it reaches its beginning.

4 Press.
- The playback starts.
 The Playback Indication "▷" ❶ appears in the Viewfinder.
- The tape will be rewound automatically when it reaches its end.

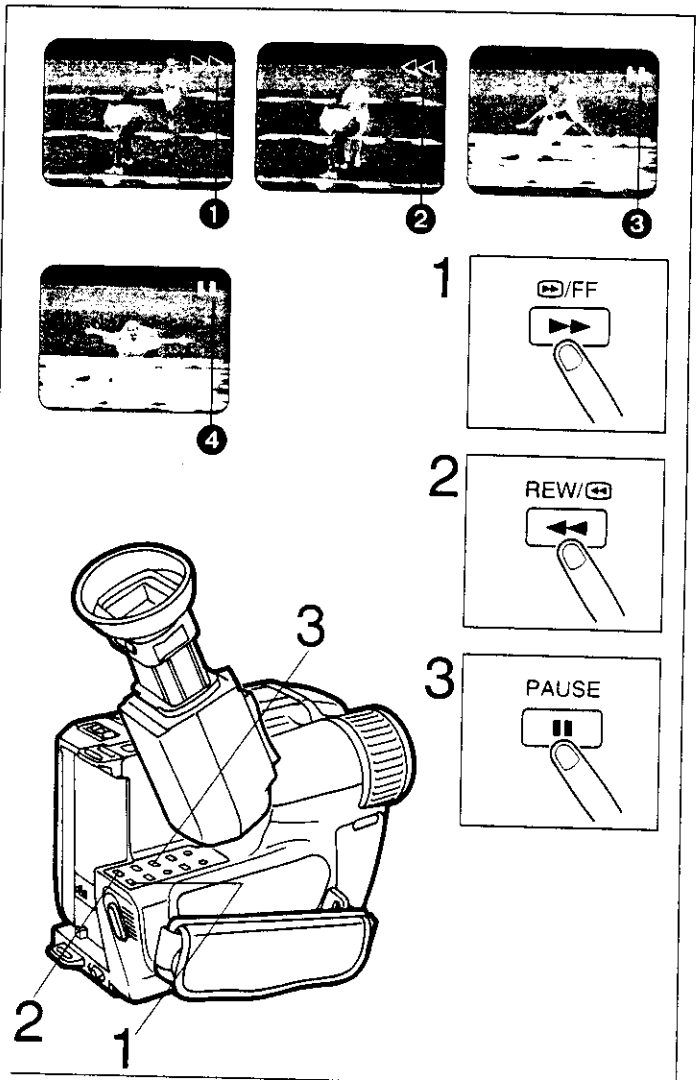
■ To Stop the Playback...
Press the [STOP] Button.

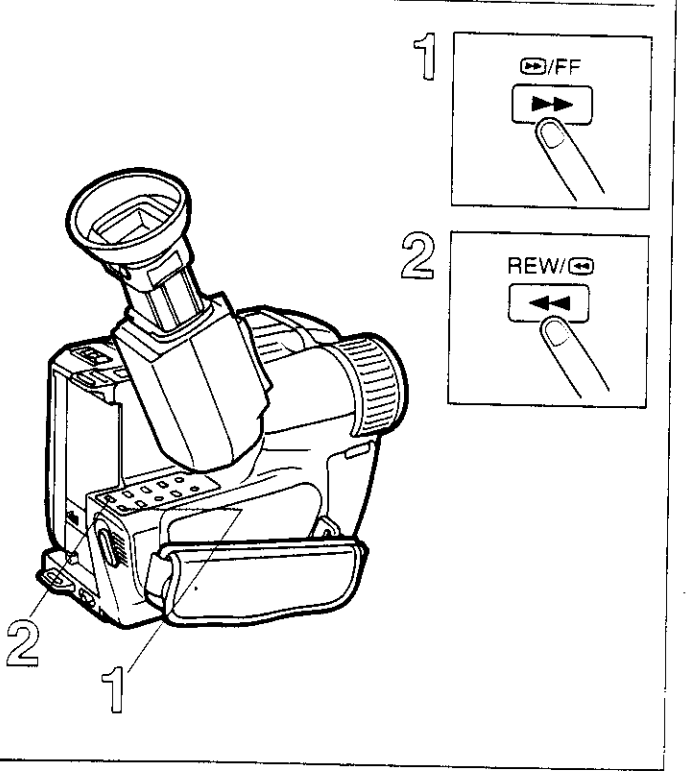
■ How to Adjust the Tracking

If the picture is distorted by noise bars ❷ during playback, the tracking needs to be adjusted.

1 Press both the [◄ TRACKING] and [TRACKING ►] Buttons simultaneously.

2 Eliminate any noise bars by adjusting the tracking with the [◄ TRACKING] or [TRACKING ►] Button.
- When playing back a Video cassette which has been recorded on another movie camera, it may not be possible to eliminate these noise bars completely.





Playback (Cont'd)

How to Use the Cue, Review and Still Playback Functions During Normal Playback

■ For Cue Playback

1 Keep pressed.

- The Fast Forward/Cue Mode Indication "▷▷" ❶ appears in the Viewfinder.

■ For Review Playback

2 Keep pressed.

- The Rewind/Review Mode Indication "◁◁" ❷ appears in the Viewfinder.

■ For Still Playback

3 Press.

- The Still Mode Indication "❚❚" ❸ appears in the Viewfinder.

To Resume Normal Playback

Press the [PAUSE] Button again.

If the Movie Camera is left in the Still Playback Mode for about 6 minutes, it will switch over to the stop mode, to protect the tape and the video heads.

Notes:

- The sound will be played back only during normal playback (if connected to a TV set).
- In the Cue, Review and Still playback modes, horizontal noise bars appear in the picture ❹. However, this is normal and not an indication of a malfunction.
- In the Cue, Review and Still playback modes, the picture may become black and white or distorted. However, this is normal and not an indication of a malfunction.

■ How to Rewind or Fast-forward the Tape

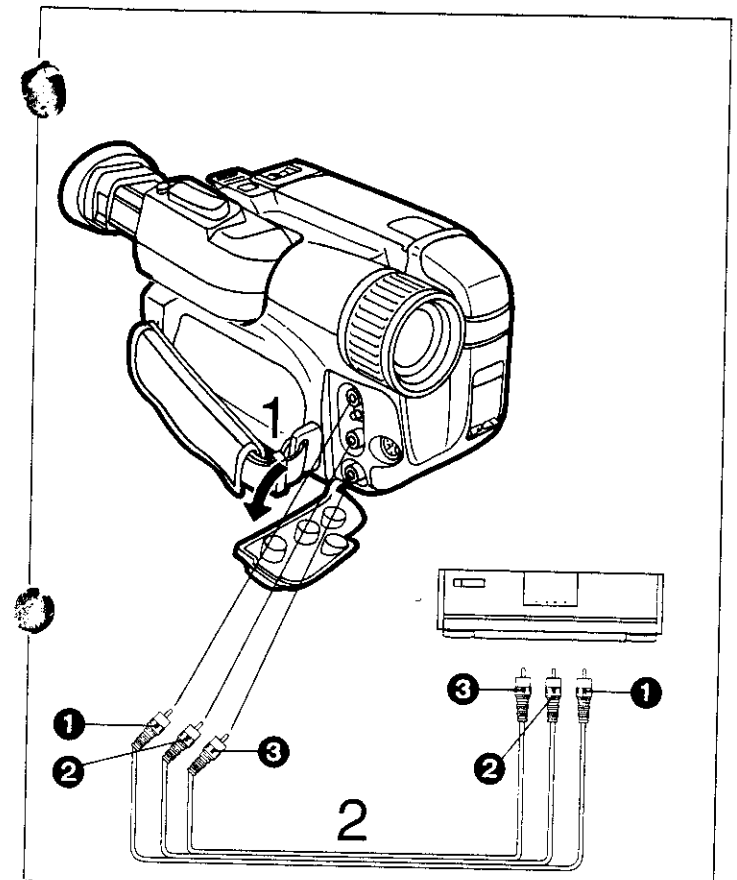
With the Movie Camera in the stop mode:

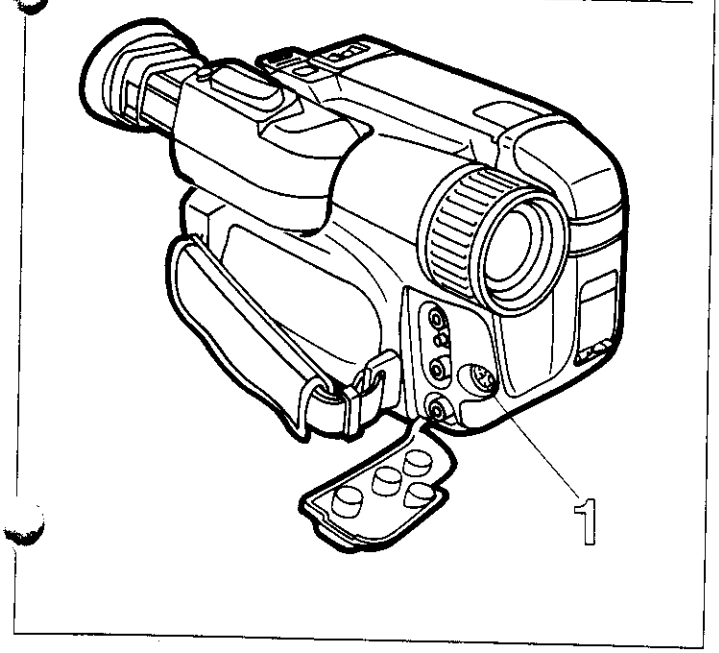
1 Press to wind the tape forward at high speed.

- The tape will be rewound automatically when it reaches its end.

2 Press to rewind the tape at high speed.

- The tape will stop automatically when it reaches its beginning.





Copying (Dubbing)

Connections

1 Open the Socket Cover.

2 Connect the Movie Camera to a VTR.

Using the Supplied AV Output Cable

Movie Camera		Video Tape Recorder
Video Output Socket ❶	⟷	Video Input Socket ❶
Audio Output Socket (L) ❷	⟷	Audio Input Socket (L) ❷
Audio Output Socket (R) ❸	⟷	Audio Input Socket (R) ❸

Operations

Movie Camera

1. Insert a recorded video cassette into the Movie Camera.
2. Press the [PLAY] Button (and if necessary the [▶▶/FF] or [REW/◀◀] Button to locate the scene from where the dubbing is to start).
3. Press the [PAUSE] Button at the point where the dubbing is to start.
6. Press the [PAUSE] Button to start the playback.
8. Locate the beginning of the next scene to be dubbed, and press the [PAUSE] Button at that point.

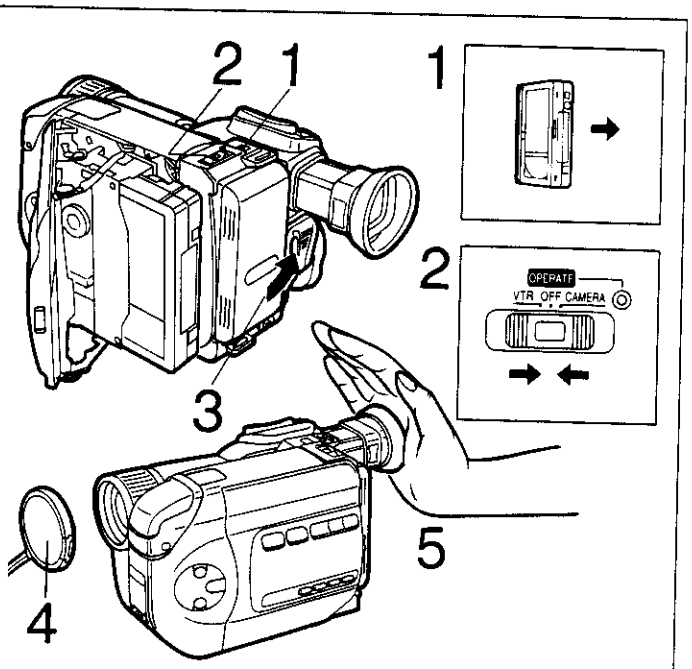
Video Tape Recorder (VTR)

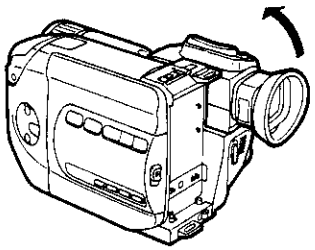
4. Insert a video cassette with intact erasure prevention tab into the VTR.
 If your VTR is equipped with SP and LP modes, it is recommended to use the SP mode.
5. Press the Record Button to start recording.
7. Press the Pause/Still Button at the exact position where the recording is to end.
 • The VTR is now in the recording pause mode.
9. Press the Pause/Still Button again to resume recording.

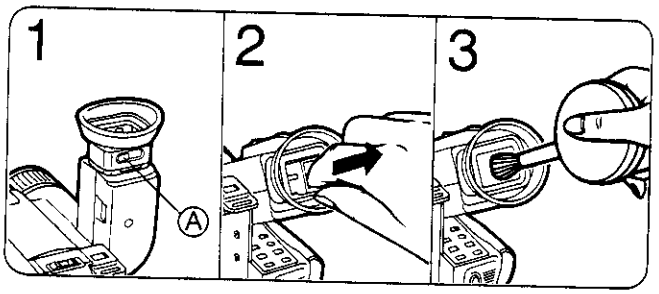
• Repeat the operation steps 6 to 9 for each additional scene to be dubbed.

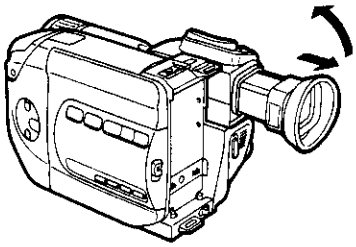
Edit Socket

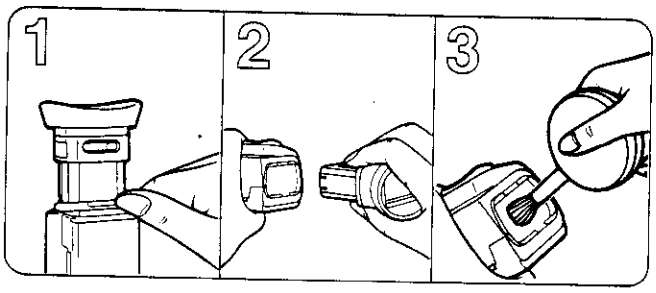
By connecting an Editing Controller (optional) to this socket as well as to a VTR equipped with Edit Socket, fast and easy editing becomes possible.











After Use

1 Remove the video cassette.

2 Press and slide to "OFF".

3 Remove the Battery Pack.

- When the Battery Pack is removed or replaced, the operation modes of the Movie Camera are reset as follows:

Digital Zoom	D.ZOOM 1 mode
Shutter Speed	1/50 s
Focus Adjustment	Auto mode
Backlight Compensation	Auto mode
Digital Effects	Normal mode
Tape Counter Indication	"0:00.00"
Counter Memory Function	turned off

4 Attach the Lens Cap to the Lens.

5 Retract the Viewfinder.

Cleaning

To clean the Viewfinder, the rectangular Lens Holder inside the Eyecup as well as the Eyecup together with its attached Tube can be removed.

■ **Removing the Rectangular Lens Holder in the Eyecup**

1 Slide the Eyepiece Corrector Control Knob Ⓐ fully to t' left.

2 Grasp the rectangular Lens Holder inside the Eyecup and pull it out completely.

3 Remove dust with a blower brush.
- Also clean the Lens Holder in the same way.

■ **Removing the Eyecup Tube and Cleaning the LCD Screen and Inner Viewfinder Lens**

To clean the LCD Viewfinder Screen and the lens at the inner en of the Eyecup Tube, the Eyecup can be removed.

1 Fully extend the Viewfinder and release the Retaining Ring.

2 Pull out the Eyecup Tube.

3 Remove dust with a blower brush.
- After cleaning, make sure that the Retaining Ring is still around the Eyecup Tube and insert the Eyecup Tube until it locks with a click.

■ **Cautions for Cleaning**
- Wipe the Movie Camera with a clean, dry cloth.
- Clean the lens only with a blower brush (used for photo cameras) or special lens cleaning tissue (used for glasses and cameras).
- Do not use benzine, thinner or other chemicals for cleaning, because they could change the colour and damage the surface the camera body.
- When using a chemically treated cloth for cleaning, carefully follow the instructions for its use.

Cautions

Please read these cautions before operating the Movie Camera and its accessories.

Video Head Clogging

The video heads are the means by which the Movie Camera places picture signals on the tape during recording, and reads picture signals from the tape during playback. If these heads become dirty and clogged from long use, the signals can no longer be recorded correctly, and the playback picture will be distorted accordingly. This is the case, for example, during the playback of a tape, the sound of which is reproduced normally, but no picture is seen, or the picture is greatly distorted. When such symptoms occur, have the Movie Camera checked by qualified service personnel.
This Movie Camera is equipped with Head Clogging Detection Function. When the heads are clogged, the " ⊠ " Indication in the Viewfinder will appear. As the accumulation of dirt on the heads may be dislodged by the movement of the tape, it is possible that this indication sometimes appears, but may not reappear on the next recording start.
The Head Clogging Detection Function will be activated when the shooting is started from the shooting pause mode. However, it will not be activated when shooting immediately after replacing the cassette and after playing back some part of the tape.

If Condensation Forms Inside the Movie Camera

Condensation (dew) forms when warm air comes in contact with a cold object, for example on a window in a heated room in winter. Condensation may also form in the Movie Camera and damage the tape and the video heads, if:
The Movie Camera is in a room where the heater has just been turned on.
- The Movie Camera is in a room with steam or high humidity.
- The Movie Camera is brought from cold surroundings into a well-heated room.
- The Movie Camera is suddenly brought from cool surroundings, such as an air-conditioned room or car, to a place which is hot and humid.
- When condensation has formed inside the Movie Camera, the "DEW" indication in the Viewfinder will flash and a few seconds later, the Movie Camera will turn itself off to protect the tape and the video heads.

After a while, turn the Movie Camera on again and make sure that the "DEW" indication is not displayed any more. Then, wait about 1 hour before operating the Movie Camera again. Depending on the surrounding conditions, it may take several hours before the Movie Camera can be used again.
- As condensation forms gradually, it may take about 10–15 minutes before the Movie Camera turns itself off after a change of working environment.
- In an extremely cold place, condensation may freeze and turn into frost. In this case, it may take quite some time for the frost to melt, turn into dew and evaporate.
- When you bring the Movie Camera from a very cold place, e.g. the ski slopes, into a heated room, keep it in a tightly closed plastic bag or similar to prevent condensation from forming inside the Movie Camera.

Cautions for the Movie Camera

In case of abnormal operation of this unit (e.g. if it emits smoke or some unusual smell), immediately stop the operation and consult qualified service personnel.

■ Cautions for Use:

- Do not disassemble or reconstruct this unit. Some internal parts of this unit have high voltage. Disassembling or reconstructing is very dangerous and may cause serious damage to the unit.
- Never put any objects inside.
 Never insert any metal objects or inflammable material through any of the openings (cassette compartment, etc.). If any liquid is spilled into the unit, immediately stop the operation and consult qualified service personnel.
 Operating the unit with some foreign matter inside may cause malfunction or electric shock.
 If children have access to this unit, special attention should be paid to this point.
- Never aim the lens at the sun because this could cause permanent damage to the CCD image sensor. Such damage could manifest itself in reduced picture quality or could make shooting altogether impossible. Attention should be paid to this point not only during shooting but during other operations as well.
- Never subject the unit to strong vibrations or shocks.
 Shocks during use may result in picture distortion.
- Do not use this unit during a thunderstorm, especially not in a large open field, because this would be very dangerous.
 If used indoors during a thunderstorm, be sure to disconnect the AC Adaptor from the mains outlet.
- Never use this unit with the cassette compartment facing down, because this could cause uneven winding, slacking and damage to the tape.
- Do not use the viewfinder as a carrying handle when transporting the unit.
- Do not use any mini-size tripods other than the recommended optional one, because some tripods are not stable enough for this unit. A fall could seriously damage the unit.

Cautions (cont'd)

■ **Cautions for Surroundings:**

- Do not use this unit in any place where water or some other liquid could splash on it.
- Do not operate this unit very near a TV set or radio, because this could negatively influence the picture and sound reception.
- Keep this unit away from areas with strong electric fields, because they could impair the proper functioning of this unit and cause picture distortion.
- Keep this unit away from objects emitting high temperature, such as heaters.
- Do not insert video cassettes into the unit or take them out from it in dusty places.
- It is not possible to use this unit in the water. If it is accidentally dropped into water (or some other liquid), disconnect it from the AC Adaptor, take it out of the water, and then consult qualified service personnel.

■ **Cautions for Connections:**

- Before connecting, confirm that all systems are turned off and that the connecting cables are not damaged.
- Do not expose the connection cables to high temperatures, chemicals and objects with sharp edges; also do not bend the cables excessively.

■ **Cautions for Storage and Transportation:**

- Do not leave this unit in places exposed to direct sunlight (e.g. a closed car in summer) or near heaters. Excessive heat could deform the body or cause other damage to the unit.
- The packing materials in which the unit is shipped are designed for optimum protection. Keep them for transporting the unit in the future.
 Store the unit and video cassettes away from magnetized objects such as toys containing motors and batteries.
- Do not leave this unit in places with high temperature and high humidity such as in a closed car or in places with steam or oily smoke.
 If this unit is left in a damp place for a long time, mold could form on and damage the lens.
- Do not leave this unit in contact with rubber or plastic products for a long time, because it could cause deformation and discoloration of the body.

■ **After Use:**

- Be sure to attach the Lens Cap.
- When this unit is connected to the AC Adaptor, turn this unit off before unplugging the AC Adaptor.
- When this unit is not going to be used for a longer period of time, remove the cassette before turning this unit off.
- When the unit is not going to be used for a long period of time, turn the unit on occasionally to prevent malfunction.

Cautions for the Battery Pack

The function of the Battery Pack is based on a chemical reaction. Pay attention to the following points when using it.

- If charged at low temperatures, the operation time of the Battery Pack becomes shorter.
- For recharging, use the specially designed AC Adaptor or Battery Charger only.
- Charge the Battery Pack within a temperature range of 10°C–35°C. At higher or lower temperatures, the Battery Pack cannot be charged to its full capacity.
- Do not recharge the Battery Pack when it is already fully charged.
- If, in spite of normal recharging, the operation time of the Battery Pack becomes too short for practical use, the service life of the Battery Pack has reached its end. Replace it with a new one.
- During operation of this unit or during recharging, the Battery Pack may become warm. However, this does not pose any problem.
- When the Battery Pack is not being used, remove it from the Movie Camera or the AC Adaptor.
- Do not short-circuit the connectors nor disassemble or reconstruct the Battery Pack.
- Do not throw the exhausted Battery Pack into a fire.

■ **Cautions for Storing the Battery Pack:**

- Do not store the Battery Pack in contact with metal objects because they could short-circuit the connectors of the Battery Pack and exhaust it.
- Do not leave the Battery Pack at places with high temperature, e.g. on the dashboard of a car or other places exposed to direct sunlight.

Cautions for the AC Adaptor

- Before connecting the AC Adaptor to an AC wall outlet, confirm that the voltage on the rating plate matches your local AC mains voltage.
- When not using the AC Adaptor, unplug its mains cable.
- Do not use the AC Adaptor for any purposes other than supplying the unit with power and charging the Battery Pack.
- When unplugging the mains cable, pull it by the plug, not by the cable.
- When listening to a radio while the AC Adaptor is in operation, the radio reception may be distorted. In this case, move the radio farther away from the AC Adaptor.
- Do not place any heavy objects on the AC Adaptor.
- Before cleaning the AC Adaptor, make sure that it is disconnected from the AC mains socket.

Use of the Optional Car Battery Cord (VW-ACC11E)

- Never connect the Movie Camera directly to te car's 12 V power source. Always use the correct Car Battery Cord (VW-ACC11E) for this model. (See page 55.)
- Be sure that the motor vehicle is powered by a +12 V negative chassis system, otherwise do not use the Movie Camera or the Car Battery Cord.
- Some camper vans and caravans use +24 V.
 Check with the vendor or rental company before trying to power your Movie Camera from the car battery. The high level of voltage may cause irreparable damage to your Movie Camera and Car Battery cord.

Be sure to obtain a warranty card from the shop at the time of purchase, and make sure that it contains all necessary informations.

Before Requesting Service

Power Source

Symptom	Cause	Action	Reference Pages
•When using the Battery Pack: Movie Camera does not turn on.	•Battery Pack is not attached.	•Attach it correctly.	12
	•Battery Pack is not charged.	•Charge it.	10
•When using the Battery Pack: Movie Camera turns off soon.	•Battery Pack is exhausted.	•Use a fully charged one.	10
	•Shooting was paused for more than 6 minutes.	•Set the [OPERATE] Switch to "OFF" and then to "CAMERA" again.	22
•When using the AC Adaptor: Movie Camera does not turn on.	•AC Adaptor is not connected.	•Connect AC Adaptor correctly to Movie Camera.	12
•Movie Camera does not turn on.	•[OPERATE] Switch is set to "OFF".	•Set it to "CAMERA" or "VTR".	22, 45
•Movie Camera turns off soon.	•Dew has formed inside.	•Wait several hours.	49

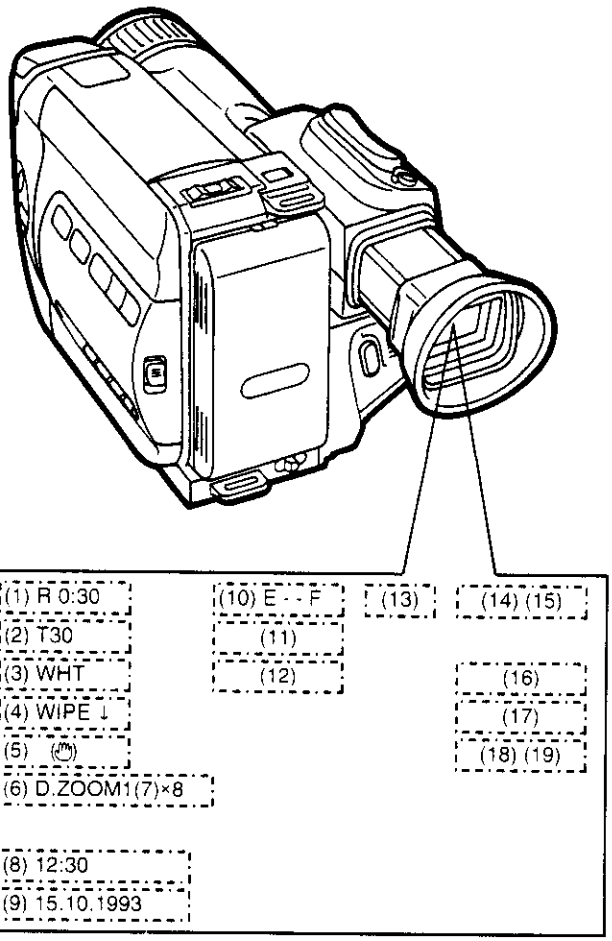
Shooting

•No picture appears in the Viewfinder.	•[OPERATE] Switch is set to "OFF".	•Set it to "CAMERA".	22
	•Lens Cap is attached.	•Remove it.	16
•Indications in the Viewfinder are not clear.	•The Viewfinder is not extended.	•Extend it approx. 2 cm.	15
	•Eyepiece Corrector is not adjusted.	•Adjust it.	15
	•Lens is covered with dust or dirt.	•Clean it.	48
•Shooting cannot be started.	•Tab of the inserted cassette is broken out.	•Cover the tab hole with adhesive tape.	18
	•No cassette is inserted.	•Insert a cassette with intact erasure prevention tab.	18
	•Tape has reached its end.	•Insert a new video cassette.	18
•Date and time cannot be recorded.	•Date and time are not set.	•Set the date and time.	14
•Date and time are not displayed in the Viewfinder.	•[DATE/TIME] Button was not pressed.	•Press the [DATE/TIME] Button.	15
	•Button Type Battery is exhausted.	•Replace it with a new CR2032 type battery.	13

Playback

•No playback picture is reproduced.	•[OPERATE] Switch is set to "OFF".	•Set it to "VTR".	45
	•Movie Camera is not connected to TV set or it is connected incorrectly.	•Connect Movie Camera to TV set correctly.	43
	•Wrong channel is selected on TV set.	•Select the correct channel.	—
•Picture is not in colour.	•Colour adjustment of TV set is not made properly.	•Adjust colour control on TV set.	—
•Picture is not in colour or distorted.	•Tracking is not adjusted.	•Adjust the tracking on the Movie Camera.	45
•Picture contains noise bars.	•Cue, Review or Still Playback is being performed.	•This is not a malfunction.	46

Quick Reference Guide to the Indications in the Viewfinder



(1) Remaining Tape Time Indication (p. 19)

- It shows that the recording time left is 30 minutes.
- The time is indicated in hours and minutes. When there are less than 2 minutes left, the Remaining Tape Time Indication flashes.
- While the Movie Camera calculates the remaining tape time, the "R" Indication flashes.

Note:

When inserting a new tape, if the Tape Length Indication does not match the video cassette being used, the remaining time indicated will not be correct.

(2) The Tape Length Indication (p. 19)

- The Tape Length Indication shows the total length of the video cassette being used.
- Select the tape length (T30 or T45) with the [EC30/45] Switch. Depending on the selected recording speed (SP or LP), the indication is different as shown below:

SP: "T30" 30 minutes of tape (EC-30, SEC-30),
"T45" 45 minutes of tape (EC-45, SEC-45)

LP: "T60" 60 minutes of tape (EC-30, SEC-30),
"T90" 90 minutes of tape (EC-45, SEC-45)

(3) Title Colour Indication (p. 36)

- It shows the colour of the title being superimposed in abbreviated form, e.g. WHT=White.
- The title colour can be selected when the title is displayed in the Viewfinder.

(4) Title Mode Indication (p. 36)

WIPE ↓ The title appears gradually from the top to the bottom.
WIPE ↑ The title appears gradually from the bottom to the top.
SCROL The title moves into the picture from the bottom.

- The title mode can be selected when the title is not displayed in the Viewfinder.

(5) Image Stabilizer Indication (p. 21, 25)

"✋"

- Turn the Image Stabilizer Function on or off by pressing the [STABILIZER] Button. The indication "✋" is displayed when it is turned on.

(6) Digital Zoom Indication (p. 30)

- Select the zoom range by pressing the [ZOOM] Button.

"D.ZOOM 1" ("D" means Digital.)
The zoom range is expanded to up to ×12.
"D.ZOOM 2"
The zoom range is expanded to up to ×36.

(7) Magnification Ratio Indication (p. 30)

- It lights up when the zoom [W] or [T] Button is kept pressed, and it goes out one second after releasing either of the two buttons.

(8) Time Indication (p. 14)

"12:30"

- The current time (hour and minute) is displayed. The time must initially be set.
- The time is shown in the 24-hour clock system.
- It is possible to display the date alone, or the time and date together.

(9) Date Indication (p. 14)

"15.10.1993"

- The year, month, and day are displayed. The date must initially be set.

(10) Remaining Battery Power/Index Indication (Back Cover)

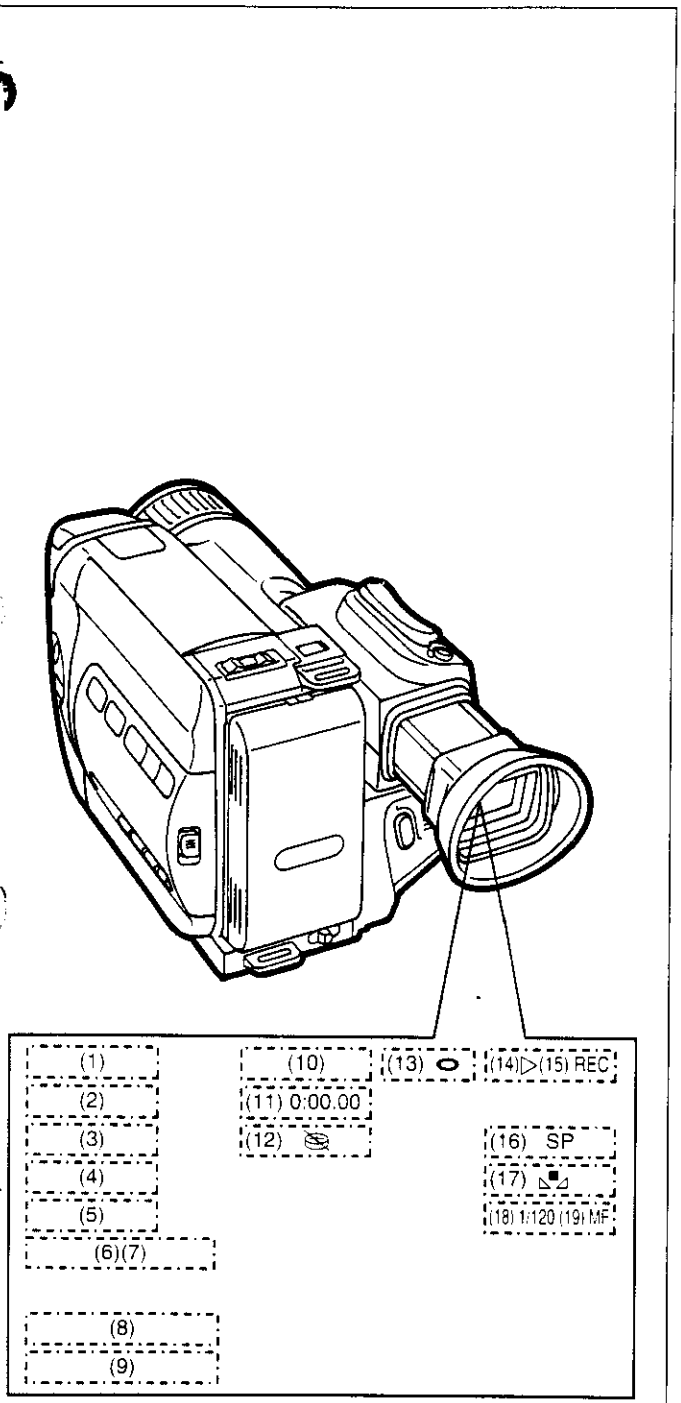
"E--F"

- The "-" indications begin to disappear from right to left as the power of the Battery Pack is being used up.
- When switching the Movie Camera on with the Battery Pack attached, the entire indication "E--F" will initially be displayed for approx. one minute. After that, the actually remaining battery power will be displayed.

"INDEX"

- This indication flashes when a recording is started and it indicates that an index signal is being recorded.

Quick Reference Guide to the Indications in the Viewfinder (cont'd)



(11) Tape Counter/Elapsed Tape Time Indication (p. 20)

"0:23.45"

- The elapsed tape time, in either shooting or playback mode, is indicated in hours, minutes and seconds.
- By pressing the [M/RESET] Button for more than one second, it is possible to reset the Tape Counter to "0:00.00".
- When a cassette tape is ejected, the tape counter is automatically reset to "0:00.00".

"M 0:23.45"

- To be able to play back a certain scene at a later time, press the [M/RESET] Button briefly at the beginning of that scene. When the [⏩/FF] Button or the [REW/⏪] Button is pressed later, it is possible to locate this scene easily.

("M" means Memory.)

(12) Warning/Alarm Indications (Back Cover)

The following indications are displayed to inform about the conditions of the Movie Camera.

"DEW", " ⊗ ", " ⏏ ", " ▬ ", " ⌛ ", "END", and "INDEX".

(13) Backlight Compensation Indication (p. 33)

- Press the [BLC] Button to select the desired degree of backlight compensation.

This is only possible if the Mode Selector Switch is set to "MANUAL".

(14) Tape Running Indications

Depending on the operation being currently performed by the Movie Camera, one of the following indications appears.

"▷"	During Playback (p. 45) Camera Search (in forward direction)
"❚❚"	During Still Playback (p. 46)
"◁◁"	Rewind/Review Mode (p. 46) Camera Search (in reverse direction)
"▷▷"	Fast Forward/Cue Mode (p. 46)

(15) Shooting Mode Indications

"REC"	During Shooting (p. 22)
"PAUSE"	During Shooting Pause (p. 23)
"SNAP"	During Snapshot Shooting (p. 26)
"CHK"	During Rec Review (p. 23)

(16) Recording Speed Indications (p. 19)

"SP"	Standard Play speed mode
"LP"	Long Play speed mode

- The mode can be selected with the [SP/LP] Switch.

(17) Manual White Balance Indication (p. 39, 40)

In the Manual White Balance Adjustment Mode:

" ◺◿ " Indication flashes slowly Adjustment is not made.

" ◺◿ " Indication flashes rapidly While adjustment is being performed.

" ◺◿ " Indication is lit The adjustment has been completed.

In the Automatic White Balance Adjustment Mode (initial mode), none of these indications is lit.

- Adjust the White Balance by pressing the [W.B] Button. This is only possible if the Mode Selector Switch is set to "MANUAL".

(18) Shutter Speed Indications (p. 34)

- The desired shutter speed can be selected by repeatedly pressing the [SHUTTER] Button. This is only possible if the Mode Selector Switch is set to "MANUAL".

The numbers in the Shutter Speed Indication show fractions of a second, e.g. 1/120 = 1/120th of a second.

- The initial shutter speed is 1/50 sec. (no indication).
- When the Image Stabiliser Function is turned on, the "1/120" Indication is lit.

(19) Manual Focus Indication (p. 41, 42)

"MF" ("MF" means Manual Focus.)

The Automatic Focus Mode can be turned on or off by pressing the [FOCUS] Button. When adjusting the Focus manually, press the [FOCUS+] or [FOCUS−] Button. This is only possible if the Mode Selector Switch is set to "MANUAL".

Specifications

NV-S8A Information for your safety

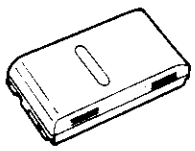
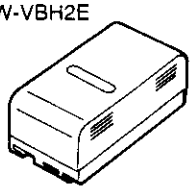
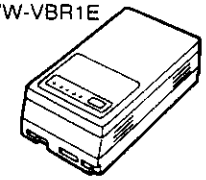
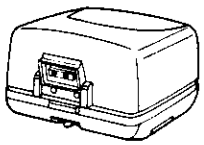
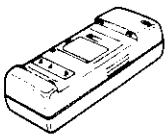
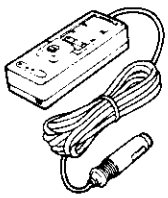
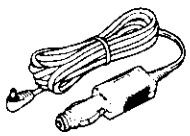
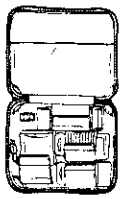
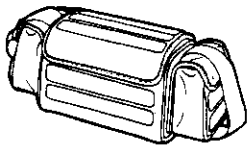
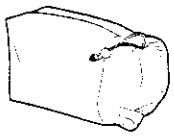
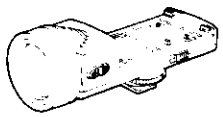
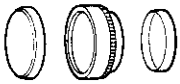
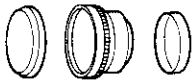
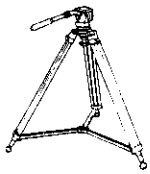
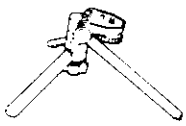
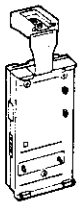
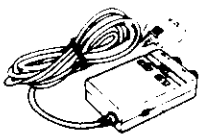
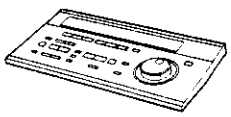
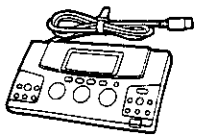
Power Source:	DC 6 V		
Power Consumption:	7.8 W (Battery operation)		
Video Recording System:	Rotary four heads, helical scanning system		
Tape Speed:	SP; 23.39 mm/s LP; 11.7 mm/s		
Tape Format:	VHS-C		
Recording/Playback Time:	45 min. with NV-EC45E (SP) 90 min. with NV-EC45E (LP)		
VIDEO			
Television System:	CCIR; 625 lines, 50 fields PAL colour signal		
Modulation System:	Luminance; FM azimuth recording Colour signal; Converted subcarrier phase shift recording		
Output Level:	VIDEO OUT (PHONO);	1.0 Vp-p,	75 ohm unbalanced
AUDIO			
Output Level:	AUDIO OUT (PHONO);	−8 dB,	47 kohm loaded
Input Level:	MIC IN (M3);	−70 dB,	4.7 kohm or more unbalanced
Audio Track:	1 track (Normal-Monaural), 2 channels (Hi-Fi Sound-Stereo)		
Image Sensor:	⅓-inch CCD Image Sensor		
Lens:	8:1 2-speed Power Zoom Lens with Digital AI Auto Focus Focal Length 6–48 mm F1.4 Auto Iris Filter Diameter 37 mm		
Viewfinder:	0.7-inch Colour LCD Viewfinder		
Standard Illumination:	1,400 lux		
Minimum Required Illumination:	3 lux		
Video Horizontal Resolution Colour:	More than 230 lines		
Signal-to Noise Ratio:	Video; More than 40 dB (SP) Audio; More than 45 dB (Hi-Fi)		
Audio Frequency Response:	50–20,000 Hz (Hi-Fi)		
Operating Temperature:	0°C–40°C		
Operating Humidity:	10%–80%		
Weight:	Approx. 735 g (without Battery Pack)		
Dimensions:	Approx. 105 (W)×111 (H)×198 (D) mm		

VW-AS1A Information for your safety

Power Source:	AC 100–240 V, 50–60 Hz (Automatic voltage adjustment)
Power Consumption:	25 W
DC Output:	DC 6 V, 11.8 W (Movie Camera operation) DC 6 V, 1.3 A (Battery Pack charging)
Weight:	Approx. 0.39 kg
Dimensions:	Approx. 70 (W)×58 (H)×178 (D) mm

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

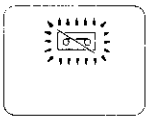
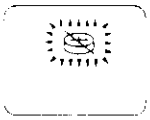
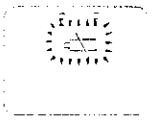
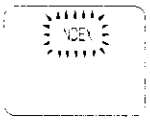
Optional Accessories

Battery Pack VW-VBH1E 	Battery Pack VW-VBS2E VW-VBH2E 	Battery Pack with Remaining Battery Power Indicators VW-VBR1E 	Battery Pack with Remaining Battery Power Indicators VW-VBR2E 	Battery Pack Holder VW-VH1E 
Battery Charger VW-BCS1A 	Car Battery Charger VW-KBCS1E 	Car Battery Cord VW-ACC11E 	Travel Kit VW-TKS1A 	System Case VW-SHCS5E 
Soft Bag W-SBS5E 	Soft Cover VW-SCS9E 	Video DC Light VZ-LDS15E 	Replacement Bulb for DC Light VZ-LL15E 	Filter Kit VW-LF37E 
Special Effect Filter Kit (A) W-LFA37E 	Special Effect Filter Kit (B) VW-LFB37E 	Tele Conversion Lens VW-LT3714E 	Wide Conversion Lens VW-LW3707E 	Standard Tripod VZ-CT55E 
Deluxe Tripod VZ-CT75E 	Table Tripod VZ-CTT1E 	Shoe Adaptor VW-SK8E 	RF Adaptor VW-RF7E 	Editing Controller VW-EC310E 
Editing Controller VW-EC1E 				

Note: Consult your dealers for details of other accessories not listed here.

Warning/Alarm Indications in the Viewfinder

The following indications are displayed in the Viewfinder to inform of you about the conditions of the Movie Camera.

Viewfinder	Conditions	Viewfinder	Conditions
	When condensation has formed inside the Movie Camera, the "DEW" Indication will flash and a few seconds later, the Movie Camera will turn itself off. —Press the Cassette Eject Button, remove the cassette and wait until the DEW indication disappears.		There is no cassette inside, or the tab of the inserted cassette is broken out. The indication flashes to warn that shooting is not possible. —Insert a video cassette with intact tab. If the tab is broken out, seal the hole with adhesive tape.
	Video Head Clogging. —Consult qualified service personnel.		When the Button Type Battery (for the auto date function, etc.) is not inserted or when it is exhausted, this indication will flash for 10 seconds after the Movie Camera has been turned on. —Insert a new Button Type Battery (CR2032).
	The "▬" indications begin to disappear one after another as the power of the Battery Pack weakens. When the last bar has disappeared, the Battery Indication "▭" will flash. —Replace with a fully charged Battery Pack. When a newly charged Battery Pack is inserted, this indication initially always shows E– –F, regardless of the Battery charging condition.		During shooting: The tape has reached its end. Replace the video cassette with a new one whose tab is intact. If the tape is partly recorded, confirm the amount of available recording time using the Remaining Tape Time Indication.
			It appears briefly while an index signal is being recorded.

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